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A New Smelting Works for Colorado.

The London (England) *Mining World*, of July 8th, contains a notice of a new company about forming in London to prosecute the business of mining, buying and smelting ores in Clear Creek county, Col., with a capital of $300,000. They have purchased mining property, conditionally, and will at once dispatch a trustworthy engineer to Colorado to examine it. The property is to cost $40,000 cash and $135,000 in stock. They expect to realize 66 per cent. per annum on their stock.

The company is known as the Swansea Smelting and Silver Mining Company.

The So-called Cardiff Giant.

IT will be remembered that, two or three years since, a considerable excitement was created by the alleged accidental discovery upon the farm of a Mr. NEWELL, near the city of Syracuse, in the State of New York, of a human figure of gigantic proportions, which was exposed during an excavation undertaken by the owner, with the avowed purpose of digging a well for the supply of water to his cattle. The obvious folly of excavating for a well in the bed of a stream of water was commented on at the time, and was not easily explained away. The popular appetite for marvel was, however, adroitly quickened by the story first of a "fossil man," of pre-historic age; for who did not believe that "there were giants in those times?" The absurdity of such a theory soon compelled the milder statement that while the recumbent giant was of acknowledged human origin, it was unquestionably of an unknown but very high antiquity, and hence must possess great archæological interest. With this hypothesis, the so-called "Cardiff Giant" commenced his tour of exhibition, after thousands of curious spectators had visited him in his resting place as he lay exposed in the excavation upon the Newell farm; and for a time multitudes thronged the places in various cities where this supposed relic of an earlier age was to be seen. We have lately had the matter brought home to our own doors through a visit of this venerable personage to New Haven, and although we had supposed the fraud had long since ceased to be capable of exciting more than a feeling of contempt, mingled with curiosity to see by what means the delusion was produced, we have been surprised at the facility with which people, otherwise sensible, give credit to the greatest absurdities, even after the "humbug" had been fully exposed. We think, therefore, it is worth while to record very briefly the real history of this sham, that it may find its place in the already large catalogue of popular delusions. We suppress names, but give the main facts as we have ascertained them from an intelligent witness who was cognizant of the origin and progress of the statue.

The block of gypsum, from which the "Cardiff Giant" was carved, was quarried near Fort Dodge, in Iowa, where there is an inexhaustible supply of massive gypsum of Mesozoic age. It was transported to Chicago, in Illinois, where it was placed in the workshop of Mr. BUECKHARDT, a well-known marble worker of that city, who contracted with the originators of the scheme for a not very considerable sum of money, to produce a gigantic recumbent figure of a man. His position, resting with the left arm under the body, the right arm thrown across the body over the pelvis, and with the legs slightly flexed at the knees, was measurably a necessity of the form of the block of stone at the artist's command. This figure was first modelled in clay, by or under the direction of Mr. BUECKHARDT, and was then transferred to the stone. Our informant states that he saw the figure more than once during its preparation. The appearance of age was given partly by treating the surface with acids to remove the tool marks and the raw look of a recently tooled surface, and this effect was subsequently heightened by the grime and soil of a seven months' interment. Thus prepared, the newly-made antique was transported by rail to a point near the Newell farm, and thence by teams to the farm itself, where, by the aid of a body of work-people, brought from a distance, it was placed in its resting-place, near the bed of a small stream. Those engaged in the work of removal and interment were taken away furtively, and thus no one at or near Syracuse but those engaged in the speculation knew of its existence. By a singular accident, an eye-witness to its making in the Chicago workshop happened to be in Syracuse at the time its discovery was announced, and, visiting the Newell farm with the crowd of curious spectators, was surprised to see there his old acquaintance half-buried in the earth. We have taken pains to verify this statement, and are promised at an early day a detailed statement from the workshop of Mr. BUECKHARDT of its entire history, which we may take another occasion to publish.—*The Am. Journal of Science and Arts.*

The Prevention of Over-Winding in Mines.

THE patent for a contrivance to prevent the cage from being hoisted above its proper position over the mouth of the shaft, has been recently abandoned in England. The affair is, perhaps, too delicate, as will be seen from the following description; but, as it may put some American inventor on the track of something better, we think it worthy of notice: "In a convenient situation in the engine-house the inventor places a pillar or case containing two vertical screws geared together by a pair of spur wheels, so that they turn in opposite directions, being driven by means of bevil gearing from the crank shaft of the engine. Upon these screws work nuts connected to two miniature cages placed visibly in front of the pillar or case, and working against a graduated scale representing in miniature the shaft of the pit or mine. The pitch of the screws and the gearing are so proportioned that the ascent and descent of these miniature cages represents exactly the ascent and descent of the corresponding cages. In the centre of the pillar or case is a special mark indicating the point where the two cages pass each other, and at or near the top is another mark corresponding with the bank or mouth of the pit. There, or slightly below this point, is a trigger against which a finger on the inner side of either miniature cage acts and rings an alarm bell to announce the arrival of the cage at the pit's mouth, and above this are two levers connected to a claw which holds up a weighted rod or lever by means of a catch or tooth. Whenever either of the cages is drawn higher than its proper position above the pit's mouth, and, before it arrives at the head gear, the finger of the corresponding miniature cage lifts its lever and withdraws the claw from the catch or tooth, allowing the weighted rod or lever to fall, and the latter acts on a slotted rod which shuts off the steam from the engine, and at the same time applies the steam or other break, and thus brings the whole machinery to a standstill.

The Destruction of Architecture in Paris.

The following extracts from an article in the *Mechanics' Magazine*, will be found to give a very good account of the injury done to the celebrated buildings of Paris.

It has been impossible to gather from the letters of the ordinary newspaper-correspondents, materials sufficient in quantity and preciseness for an estimate of the actual loss to architecture involved in the recent events in Paris. There have been lists, called accurate, of the public buildings destroyed, accompanied by rash assertions that one monumental work could be "restored," and that the replacing of another was a "mere matter of money;" and, last of all, there has been the statement that out of 60,000 houses which Paris is said to contain, not one hundred have been destroyed—as if that were not much. The author of this last statement takes no account of the destruction of many hundreds of façades of houses, most elaborate in their decoration of mouldings and sculpture.

That some of the principal buildings are roofless and gutted; that the external walls of several of them, where not fallen, are in a ruinous state; that the western and south-west portions of Paris, within and outside of the fortifications, must have lost most of their beautiful features; and that irreparable injury has been done to buildings that were choice examples of the seventeenth and eighteenth centuries, is clear enough. But what must be the destruction in that architectural physiognomy of Paris, which was the work of the last forty years, and especially the work of the reign of Napoleon III.? The Sainte Chapelle is reported intact. The palaces of the Luxembourg and the Institute; the New Opera House; the library of the Rue Richelieu (late Bibliothèque Imperiale), and the theatre of the Châtelet, do not seem to have suffered much. The Church of the Invalides, and the Ecole des Beaux Arts, are not mentioned. The dome of the Pantheon has been struck in several places by shells; but one would like to know something about the more beautiful domes, as those of the church of Val de Grâce, and the Sorbonne.

Notwithstanding the rash assertion of Professor Beesly, just now helping in the work of setting class against class, and who defends one "atrocity" by pointing to another, we do not "now know" that Notre Dame was "absolutely untouched;" we know that it was set on fire, and suffered internally to some slight extent. Contrary also to what the same writer

would wish us to infer by his italicised quotation about "*not one church or chapel*" having "been destroyed," we read that willful destruction has been done as regards some of the chief works of art in the interior of the Church of Notre Dame de Lorette. That the Church of St. Eustache, probably the most interesting example in Europe of a mixture of Gothic and Renaissance architecture, is seriously injured, all accounts agree in stating. Let us hope that the destruction comprises the tower and the western front, begun in 1754, and not the body of the church, which was commenced in 1532. The Church of St. Sulpice, with its beautiful Lady chapel, its front by Servandoni, its frescoes and sculpture, its two shells that were given to Francis I. by the Venetian Republic, has been reported destroyed and safe alternately. The Church of the Madeleine has been seriously injured in its columns and entablature, and the sculpture of its pediment, and as regards one of its bronze doors. The new Church of La Trinité seems to have suffered considerably; and that of St. Augustin cannot have escaped. So it might be said of some of the still modern churches, as St. Vincent de Paul, and Sainte Clotilde; and of the interesting historic monuments, St. Germain des Prés, St. Etienne du Mont St. Germain l'Auxerrois, St. Merri, and St. Séverin, and the seventeenth-century Jesuit Church of St. Paul and St. Louis, with one of the finest fronts of it class of architecture. The Obelisk of Luxor, according to very recent information, is yet standing erect in the centre of that once charming creation of our deceased friend, the architect Hittorff, the Place which was once of Concord; but the ruin around includes one, at least, of the fountains, several of the seated figures, and numerous accessories of the Place, such as the candelabra. Shall we ever see again the horses of Marly, by the younger Coustou, which marked the entrance to the Champs Elysées? The destruction of the Ministry of Marine, once the *Garde-meuble de la Couronne*, is mentioned in some of the accounts, and is apparently made light of by the *Times;* it was one of the two structures designed by the architect Gabriel, forming the north side of the Place, which made such an effective framework to the *vista* which terminated in the Madeleine. Does the pedestal of the Obelisk still exhibit representations of the machinery used in its transport and erection, the whole work of which took some five or six years to accomplish? Verily, there ought to be no more draughts upon countries where works of art have been exposed to certain destructive agencies; they will be safer where civilization is not. "*Vive l' humanité*" were the last words of Citizen Millière, head of the *fusées* charged to set fire to the public monuments of the left bank of the Seine. Since the time of the expeditions of Cortes and Pizarro, when religion was propagated with the sword's point, there has been nothing like the last French efforts at fostering the *humanity;* or rather, never was there witnessed an imbecility parallel with that of men,—the men of both sides, we had almost said,—who, belonging to the nation standing first in art, and being great in science and in letters, could compass the destruction of the works which formed the material out of which could be constituted the attributes of humanity during ages to come.

We can find nothing to "reconcile" us, in the manner suggested in the journal above named, to the "destruction" of "the new buildings connecting the Louvre and the Tuileries;" which buildings, however —or at least those of the Place Napoleon III.—do not seem to have suffered. The consistency of their "thoroughly Imperial character" with the "grounds of pure taste" would be a question scarcely troubling people fresh from London. Whilst we are referring to this writer, may we ask where he discovered the Sainte Chapelle to be in any sense a monument of "Mr. Pugin's gorgeous fancy?"

According to accounts which seem the most worthy of trust, the portion of the Tuileries which was really most valuable as architecture, that is to say the Pavillon de Flore, and possibly the wing extending eastward along the Quai des Tuileries towards the Louvre, have received little injury externally. This portion was completed about the year 1867. It does not seem that the portion of the Louvre fronting the Quai du Louvre which was commenced by Ducerceau under Charles IX., and is usually placed in the reign of Henry IV., but which was left with its ornament *en bloc* till 1848, has received material injury; but out of the conflicting accounts of the state of the east front, Claude Perrault's celebrated but somewhat over-rated work, it is impossible to get from a conclusion that this portion of the building has greatly suffered. If so, some of the works of art, the most interesting in the collections to architects and sculptors, cannot have escaped, provided they were left on the anticipated investment of Paris. The library of the Louvre has been destroyed; but it was located in the Pavilion facing the Palais Royal—that is to say, at some distance from the Old Louvre.

But what must we say of the destruction of the Hôtel de Ville, centre of so many revolutions, but fondly hoped to have been protected against another? We confess that the destruction of this building,—an adopted model for architecture in London, as in other parts of Europe—troubles us less than the loss of the valuable documentary material which must have been contained in it. With buildings on the opposite side of the Place, which latter contained the *bureaux* of the service of the sewers and the water-supply of Paris, it concentred the bulk of the material in the shape of books, drawings, and manuscripts, connected with those improvements which, whatever their money cost, have done much for the health and comfort of the residents in Paris, and have set an example to London. Before the time of Napoleon III., and the much abused Baron Haussmann, there was not even a plan of Paris, with the slightest title to accuracy; and everything connected with the street-communications, aeration, sewerage, and water supply of the capital, was far behind the demands of the time. That condition had been so far modified that—amongst results—there was a considerable diminution of the mortality; and further works, as in connection with the water-supply, and the preservation of records of buildings interesting from their antiquity, were in hand. If we only gave a list of the *bureaux* of the Hôtel de Ville, with the rooms occupied by the library, and for meetings of literary and scientific societies, we should show at once that loss and disorganization must have taken place, enough to tax, for some time to come, even that remarkable skill which the French are manifesting in the direction of putting things right.

It is curious, however, to note the utter failure as to one of the objects, or what was perhaps the primary object, of the street-improvements of Paris. It was supposed that by isolating the Hôtel de Ville, by removing throughout the city the agglomerations of houses that might, from the narrowness of the streets be converted into fortresses, by driving straight lines that might be commanded from end to end by cannon-shot, by providing the means of rapid communication between the western fort, Mont Valérien, and the chief arsenal in the east, Vincennes, and by substituting macadam and asphalte for paving, there would be an end of those terrible *journées* when the best government, and the whole country, could in a few hours be at the mercy of a small part of the population of the capital. There are in Paris, always, as there would be found in London, men, and women and children, who look on revolutions as their opportunity for providing for their wants; and we express our views in quoting the words of the Belgian Minister of Justice on the 31st ult., when he said, referring to the incendiarism and assassination in Paris: "The people who are most guilty in such matters are those intellectual malefactors who seek to agitate the people by sowing discord between capital and labor."

The column of the Place Vendome is, or was, scarcely the sort of monument whereof the loss would be a subject of much repining. Excepting the mere sculpture, it was little better than a reproduction of the Trajan, or the Antonine column; and neither of those Roman structures is sufficiently free from the vice of most columnar monuments, which was pointed out when the Nelson column was erected, namely, that which would be paralleled in the erection of a colossal leg from the human figure in place of a statue. Moreover, almost any act of demolition that would take from the French people that passion for mere glory, which is exemplified in so many of the monuments of Paris, would be for the advantage of the French nation, whilst probably also for the advancement of art. Montesquieu, who said he had a desire for the welfare and honor of his country, whilst little love of glory, wrote in his "Pensées Diverses," "*La France se perdra par les gens de guerre;*" and his prophecy has come to pass.

Weathering of Coal.

AN important communication has lately been made by Dr. RICHTERS to a German journal, upon the influence of atmospheric agencies on stone coal exposed to the air in coal yards and other localities. In this memoir he states that the property which coal has of taking up oxygen, when heated gently (as to 375° F.), is modified essentially by its percentage of disposable hydrogen. This first becomes oxidized, forming water; then the oxygen enters directly into combination with the coal. The carbon of stone coal possesses, at a temperature of about 375° F., a variable affinity to oxygen; as the smaller portion (5 or 6 per cent. of the total amount) combines with oxygen to form carbonic acid; the rest shows little or no affinity for oxygen. These two propositions apply equally well at the ordinary atmospheric temperature.

The so-called weathering of coal he ascribes to the absorption of oxygen, which in one case oxidizes a portion of the carbon and hydrogen of the coal, converting it into carbonic acid and water; in the other, entering directly into the composition of the coal. If then the coal becomes heated in any way, a more or less energetic chemical action, varying in proportion to the elevation of the temperature, takes place upon the combustible substance of the coal; but, on the other hand, the process of oxidation proceeds so slowly, that the changes occurring within the period of a year can scarcely be established with certainty, either technically or analytically. Moisture, as such, seems to have no accelerating influence upon the weathering of the coal, except in the case of coal containing a large amount of sulphuret of iron or pyrites. Pure coal, heaped up for nine months or a year, unprotected from the weather, and not allowed to become heated, is changed no more than it would have been in a perfectly dry locality. As long as an increase of temperature does not exceed certain bounds, as from 340° F. to 375°, there is no appreciable loss of weight by the weathering; and, in fact, there should be a slight increase, in consequence of the absorption of oxygen. The decrease in value for combustible purposes, and for other technical applications, which coal experiences by the weathering, is produced by a slight decrease of carbon and hydrogen, and an absolute increase of oxygen, in consequence of the exposure.—*U. S. R. R. and Mining Register.*

The Turbine Wheel as a Propelling Power for Vessels.

WITHIN the past few years several attempts have been made to devise some means of propelling ships by taking in water at the bow and forcibly ejecting it at the stern. Among the most promising of these experiments was a boat designed for canal navigation, which was built with a hollow cylinder extending throughout its length just above the keel, and supplied with a sort of valve pump action working in the cylinder, which sucked in the water at the bow and ejected it forcibly in a stream divided by the rudder, by which it was expected to insure a quick response to the helm. This vessel was built at considerable cost, and was provided with beauti-

ful engines, but the first trip, from this city to Albany, proved her a total failure, and we have not since learned what became of the boat or to what use it was subsequently applied. Other and equally unsatisfactory experiments have been tried at different places, but without important results, and now we read in our Eastern exchanges of an experimental vessel, building at Nashua, N. H., the invention of two mechanics of that place, who claim to have solved the problem and reduced it to a practical application. The propelling power of the new vessel is to be a turbine wheel set at the bottom of a flume rising five feet from the keel. The water upon which the wheel will operate enters the flume from the ship's sides just below the water line, through openings provided with valves to prevent the water flowing back when the vessel lurches in a rough sea. A tube, 18 inches in diameter, extends from the flume near the turbine wheel to the stern, and through this the water is ejected. This tube is so constructed as to constitute a vacuum, and is supplied with a set of revolving fans to accelerate the egress of the water, as well as valves to prevent its inflow. The water in the flume is to have a head of five feet, furnishing a power of nine horses. With this complication of wheels and valves, the inventor expects, when he has his vessel once fairly in motion—which he is not likely to do without the aid of a tug—to attain a speed equal to the rapidity with which he can revolve his turbine—an expectation which he can scarcely hope to see realized. We do not wish to discourage inventive genius in this or any other department of mechanical engineering, but it seems to us that this is another instance of the folly into which practical men are often led in their efforts to devise new methods of propelling vessels. Why the turbine wheel, acting upon a little volume of water confined in a narrow space, should be considered better, or in any respect as good, as a common screw placed in the stern, we cannot understand. It would seem, however, that there is an unaccountable fascination in such experiments, which have induced men to waste a great deal of both time and money in ventures which, if fairly successful, would add nothing to the world's practical knowledge of the science of naval architecture. Why it should be so we do not know, but that such is the fact is obvious to the simplest comprehension.—*The Iron Age.*

The Heliotype Process.

THE art of reproducing photographic images rapidly and cheaply by a mechanical printing process, is being steadily developed; and we may at no distant day expect to see it brought to such practical perfection as to take the place, in a great measure of the lithographic process now in almost universal use.

It was discovered some years ago, that a film of gelatin saturated with bichromate of potash acquired, on exposure to light, certain properties which have, since that time to the present, taxed the ingenuity of numerous observers to utilize. The most important of these properties is, that in those parts where the light has acted upon such a film, it will take up greasy ink, precisely like a lithographic stone, while the parts unaffected by light will absorb water. A number of photo-lithographic processes depending upon this property for their efficiency have been from time to time announced; but few, if any, appear to possess all the qualifications requisite for extended adoption in practice.

The Albertype process, discovered by ALBERT of Munich, is one of the latest and best. In this a plate of moderate thickness is coated with a thick film of liquid bichromated gelatin, which is subsequently exposed to the light to render it insoluble. This is then coated with a thin coating of sensitive gelatin, which is exposed to the light beneath the negative which it is desired to reproduce; from this film thus obtained, which is rendered indifferent to further change by washing, most excellent prints are obtained by the lithographic process.

The Heliotype process,* the latest development of the art, differs from the one just described, in a number of details, by which greater toughness, durability and freedom of manipulating films is secured. Mr. E. EDWARDS, the discoverer of the process, adds alum to his bichromated-gelatin solution, and finds that by this addition, while the sensitiveness and subsequent ink-absorbing property of the films are not the least impaired, they possess, to a far greater degree than has yet been obtained, the property of swelling but very slightly in water, and the power of resisting the action of the printing press.

The gelatin films are spread on finely ground glass plates, which are so prepared by polishing with wax as to admit of their subsequent removal. The films, carefully dried, are exposed beneath the negative. The impressed films are then washed in the dark rooom and caught on zinc plates. To these the films are firmly attached by pressure, by which at the same time all remaining traces of free bichromate are removed, The films thus prepared are ready to undergo the printing process. By varying the consistency of the ink, it is possible to print in two colors; the stiff ink affecting only the portions most changed by the light, while the thin will take hold of the half tones. After use, the films are removed from the zinc plates and preserved for future printing.—*Journal of the Franklin Institute.*

* For detailed accounts of the history and successive stages of this process, see *Journal of Photography* and *Nature*, Vol, IV., p. 85.

Smelting Processes at Freiberg.*

By PERSIFOR FRAZER, JR.

MODE OF PROCEDURE IN ROASTING.

The strength (weight) of a roasting charge for a lead furnace, amounts to ten centners (100 Saxon lbs)

THE charge enters the muffle by two holes in its roof, from the drying hearth above it. The charge is here brought to a dark cherry-red glow, and remains perfectly in powder form without agglutinating. After 4 or 5 hours roasting, it is reached through the middle working door, and drawn by a rake down through a vertical shoot ending in the sole of the muffle and generally closed by a slab. It is then roasted in direct contact with the flame of stone-coal. Here the temperature of the hearth is raised until it loses its powdery state and forms larger or smaller lumps. Meantime a fresh charge is brought upon the muffle, receives its preliminary roasting and is raked down upon the hearth as before described.

There are three periods distinguishable in the course of the process:—1) The period of ignition; 2) The period of desulphurization; 3) The period of complete roasting.

In the period of ignition which takes place in the muffle, the ore loses its hygroscopic water. The charge is allowed to lie quietly in the muffle without turning or raking it, until the beginning of the desulphurization, which arises from 1½ to 2 hours after the commencement ("burning-out" of the Ore).

In the period of desulphurization the sulphur and arsenic present in the ore, commence to burn and keep the ore in a state of ignition by their own combustion. During this time it is necessary to turn and rake the ore diligently with the roast rake, "crutch," and shovel, in order to keep always presenting new surfaces of the glowing ore particles to the atmosphere, and thus to accelerate the desulphurization. Quantities of vapor of sulphurous and arsenious acids (so called roast gases), are developed. The greater part of the period of desulphurization takes place on the lower hearth. This period lasts 3½ to 4 hours, during which the fire must not be increased too much, lest a premature agglutination of particles of ore take place, which would interfere with a proper roasting.

During the period of desulphurization the ore loses the powder form and becomes more and more flocculent and bulky. The last two hours of the period of roasting constitute the period of *complete roasting.*

* Read before the American Philosophical Society, June 17, 1871.

The charge ceases to emit gases, and must, therefore, be strongly ignited in order to decompose the sulphides of the metals and the sulphates of the metalic oxides. After the completion of the roasting (i. e. 8 to 10 hours), the charge is drawn out of some convenient working aperture, at a red glow into a car which has been pushed under the furnace sole, and a sample is taken for assaying; the remainder is dumped into the receptacle for the particular row of furnaces to which it belongs, cooled off with water and left till it is needed for smelting. The charge which is drawn out, must have been roasted down to 4-5 p. c. of sulphur, whereas its percentage was originally about 25 p. c.

For the determination of the percentage of sulphur, a weighted quantity of the charge is pulverized with three times its bulk of carbonate of soda and saltpetre. This mixture is melted up, dissolved in hot water, and filtered into a beaker glass, to which is added a little chemically pure chlorohydric acid; and is then titurated for sulphuric acid. The daily number of workmen to a furnace is six, two going on every eight hours. One looks out for the muffle and the new charge, the other finishes the roasting of a charge, and attends to the firing. As the muffleman has less to do, they change every four hours. The average consumption of fuel in 24 hours is about 7 bushels of hard slaty coal with a large percentage of ash. A bushel weighs two centners.

MIDDLE PRODUCTS OF THE LEAD PROCESS.

1) *Slag.* The aim is to make this a very fusible silicate of the protoxide of iron, the earthy oxides, and the oxides of zinc and manganese with a little lead (in reality about 5 p. c., containing 0.005 p. c. silver). Of this slag a part is used in compounding the new charge, and the rest in extracting silver and lead in the English furnace.

2) *Lead Matt* is a combination of several sulphides of the metals, principally of lead, but containing also sulphides of iron, copper, zinc and silver. The matt contains on the average 25 to 20 p. c. lead, 10 to 15 p. c. copper and 0.1 to 0.15 p. c. silver. In 24 hours about 10 to 12 centners of matt are formed.

The matt is stamped, and roasted in the hearth and muffle furnace, after which it is again mixed with slags and various materials rich in lime, and brought to the cupola furnace, in order to extract as much as possible of the silver and the lead from it, and to increase as much as possible its percentage of copper. It contains the larger quantity of the copper in the compounded charge. The second time the matt is treated, it is called the "modification" of the matt, and takes place after the conclusion of a run, in the same furnace in which the lead process itself is conducted.

3) *Raw Lead* which collects in the sump of the the furnace, after the above two processes, is a lead in which various impurities, such as arsenic, antimony, and copper, exist in greater or less degree. The greater part of the silver of the charge is collected in this raw lead. It contains from 0.6 to 0.8 p.c. of silver and sometimes with very rich Dürr-ores reaches 1 p.c. of silver. About 16 to 18 centners are produced daily. In order to separate the lead and silver, this raw lead is either directly cupelled, or (which is the case except with the very pure ores) it is refined to get rid of the impurities, then submitted to Pattinson's process to concentrate the silver, and finally cupelled when it reaches about 1.5 to 1.6 p.c. silver.

LEAD SPEISS is produced, though more rarely. It is composed of iron, copper, cobalt, nickel and arsenic. If it forms in any quantity, its place is between the raw lead at the bottom and the lead matt immediately above it, so that the order in which these products lie is (counting from the bottom), 1st, raw lead; 2d, lead speiss; 3d, lead matt; and 4th, lead slag. It usually adheres to the matt, however, and is submitted to further treatment with the latter, until a sufficient quantity is obtained to make a disc easily raised from the pot, into which the molten mass is drawn off.

The expenditure of fuel per day is thirty to thirty-two bushels of coke.

The force necessary to keep a furnace in constant operation consists of six men, three by day, and three by night, who have twelve hour shifts. They are divided into smelters, assistants, and slag-runners; of each of whom there is one in each shift. The smelter has the reponsibility of taking charge of the furnace and conducting the process. The assistant has to help him as much as possible, and especially feed the charge into the furnace, under direction of the smelter. The slag-runner has to remove the slag to the dump heaps, and keep the part of the floor over which it runs, always in order, and free from obstructions.

MODIFICATION OF THE LEAD MATT.

This is always taken up at the close of a run of the lead process. The matt is stamped and roasted as completely as possible, mixed in the slag from the same process, and with furnace ends from the lead process, and smelted in a cupola furnace. There is no definite relation of parts in the mixture. Generally, to about 40 cwt. of roasted matt 80 cwt. slag are added. It smelts very rapidly, because the mixture is very fusible, and is drawn off six to eight times in a day. The products are:—1st, Slag; 2d, Matt (modification); and 3d, Raw Lead. The manipulation in this process is the same as in the lead process.

COPPER MATT.—The matt which falls in the treatment of the modified matt, is called copper matt. The object is to increase the percentage of copper, and the partial extraction, at least, of the silver and lead, of which this matt still contains no small amount. This, and the spur process, are undertaken at the end of a lead matt run, in the same kind of furnace as in the lead matt process. The matt is stamped or roasted, and smelted with litharge reduction slag, and a small percentage of fluor-spar, lime and slag of the same process. Care must be taken with the roasting, as this matt melts more easily than lead matt, on account of its higher percentage of copper. In twenty-four hours, about 60 centners of copper matt, or about 30 centners of spur matt, are produced; but besides these, raw lead and some speiss, which latter goes to the lead matt process.

CONCENTRATION PROCESS.—By means of spurring, the matt has been brought up to 40 or 50 per cent. of copper; and in order to increase the percentage of it still more, it is now concentrated in the reverberatory furnace. Reagents are added to it, calculated to evolve a concentration of copper matt as free as possible from iron, and suitable for vitriolizing. It is stamped and roasted, and mixed with quartz and heavy spar (or barytic slags from previous runs). The use of the baryta is to assist in slagging off the iron; the principal object of the process being to reduce the percentage of this metal to a minimum. The separation of the silver and lead is really of secondary importance, because these metals are entirely collected in a residue left during the course of the next operation, or that of vitriolization. Charges contain 18 to 20 centners of matt (of which by far the greater part has been washed), and 10 to 12 centners heavy spar and quartz—the latter about one-half to two-thirds of the mass. As before stated, this can be replaced by barytic slags.

SPEISS PROCESS.—The plumbiferous and pyritic material excerned in the course of the lead and spur matt processes, containing 0.4 to 0.5 per cent. of silver, and 1 to 2 per cent. of nickel and cobalt, is made of value by the speiss process. It is mixed with the hearth of cupellation and barytic slag from the concentration-copper process, besides some heavy spar. There result from this, speiss with 12 to 13 per cent. of nickel and cobalt, and copper matt.

This raw speiss is subjected to two or three meltings with various reagents, such as litharge, cupellation earth, highly silicious slags and heavy spar, and finally becomes a speiss with about 0.03 per cent. of silver, 15 per cent. of copper, and 15 to 18 per cent. of nickel and cobalt. This operation is called the desilverizing of the speiss, or the separation of silver from it. The thus desilverized speiss is placed in a small reverberatory furnace with 50 to 60 per cent. heavy spar, and 20 to 25 per cent. quartz, and refined. The result is a copper matt and a natural speiss, almost free from iron, with about 40 to 50 per cent. of nickel and cobalt, and 10 per cent. of copper. This product, which is an educt in so far as it is not further treated at the Freiberg Smelting Works, commands a good price at the cobalt blue manufactories.

Recently the refining and desilvering of the speiss have been accomplished at one time. The speiss is refined with heavy spar and quartz, and after the slag is drawn off, about one or one-and-a-half times the amount by weight of lead, poor in silver, is added to the molten mass, and stirred well, the fire being increased. After this, the mass is drawn off into some convenient receptacle; and the products are, raw lead, copper matt, and a speiss much richer in cobalt and nickel, and containing 0.01 to 0.02 per cent of silver.

REFINING RAW LEAD.—This consists in gradually raising the heat to the melting point, and scraping off the less fusible impurities which float, as scum, on the surface of the metal bath. The lead is kept at a low red heat, and air is freely admitted to its surface.

LEAD SLAG, OR RAW PROCESS.—These two names really designate the same process, and they exist because, at the Muldner Works, the lead slag, besides the ores, is subjected to it, while at the Halsbruckner Works only the Dürr ores and reagent ores having less than 0.1 per cent of silver, are treated in this way, the lead slag from the Pils furnace being thrown away as worthless. Such ores, of course, are also treated at the Muldner Works.

The object here is to collect the small percentage of silver in the iron matt, which is afterwards roasted at the sulphuric acid works, and provides the latter, to a great extent, with sulphurous acid gas, while the argentiferous iron oxide which is the other product, forms the most valuable base for the composition of the slag in the lead process, and exchanges its associated percentage of silver for the sulphur of galena, in the evolution of the raw lead. In the following remarks, the lead slag process will be considered, but it is to be understood that it differs from the raw process only in admitting to the same treatment the product from which it derives its name.

[To be continued.]

A New Rolling Mill.

AT the international exhibition recently opened in London, the model of an iron rolling mill seems to merit description. It is known as "White's rolling mill, and is intended to avoid the loss of time and other disadvantages attending the operation of rolling as ordinarily practiced by the shifting of the bar from one groove to the other, the turning it sideways for edging, etc. The system consists in the use of several pairs of rolls combined in one mill, some of the rolls being vertical and others horizontal, and they are so arranged that the bloom is compressed flatways and edgeways alternately through as many pairs of rolls as may be required for reducing the iron to its proper size. The machine is so constructed that the bloom enters the second pair of rolls before leaving the first, and so on through the entire series of rolls without stoppage, thus superseding all manual labor, with the exception of a man to throw the pile into the first pair of rolls, and another to take the bloom or bar away, and what is more important still, allowing the iron the smallest possible space of time to cool in the process. The system is more particularly applicable to blooming, roughing, or slabbing rolls, but, in many instances, it can also be applied to finishing rolls. The mill is capable of turning out a large quantity of work, the Aberdare Iron Company having made from 90 to 100 tons of iron in twelve hours by one machine.

Iron Paper.

IN the Great Exhibition of 1851 an American specimen of iron paper was first exhibited. A lively competition in iron-rolling ensued among British iron manufacturers, excited by the above challenge from America, as to the thinness to which steel could be rolled cold. Mr. GILLOTT rolled sheets the average thickness of which was the 1800th part of an inch. In other words, 1800 sheets piled upon each other would collectively measure an inch in thickness, whilst the thinnest tissue paper to be purchased in the stationers' shops measured the 1200th part of an inch.

These very thin iron sheets are perfectly smooth, and easy to write on, although porous when held up to a good light. It may not be out of place, considering the great interest that is taken by those connected with that great branch of industry, the iron trade, to give a few curious particulars as to the extent iron can be welded, and the thin sheets that can be rolled out. Brother JONATHAN little thought what a hubbub would be created in the old country when from Pittsburg he sent that wonderful letter, written on a sheet made from iron, which took no less than 1000 sheets to make 1 in. in thickness, the dimensions being 8 in. by 5½ in., or a surface of 44 in., and weighing 69 grains. The fact had no sooner made its appearance in print than Britain's sons began to work, and soon we heard of a sheet containing the same number of surface inches, but weighing only 46 grains, that had been made at the Marshfield Iron Works, Llanelly, Carmarthenshire, being exactly one-third less in weight. But soon the Welsh leek had to give way to the rose of England, for Staffordshire was anxious to take its wonted lead. The Hope Ironworks succeeded in making a sheet of 119 surface inches, weighing but 89 grains, which, reduced to the American and Welsh standard of 44 in., gives about 33 grains; Messrs. R. WILLIAMS & Co., 69 in., 49 grains; reduced to the same standard, about 31 grains. For a time Staffordshire wears the belt, but Wales becomes very restless, and is anxious for the honor of St. David; so further attempts must be made. Marshfield comes again into the field. They succeeded in making one sheet, 8 in. by 5½ in., or a surface of 44 in., of the astounding weight of 23½ grains only, which required no less than 2,583 sheets to make 1 in. in thickness; another sheet, 8 in. by 6 in., or 48 surface inches, weighed 25 grains, but, brought to the standard of 44 inches, gives but 23 grains, and requires 2,950 sheets to make 1 in. in thickness. The Pontardawe Tinworks next come into the field with a sheet 14¾ by 7 5-16ths, or a surface of 115·17 in., weighing 60 grains; but, being reduced to 44 in. is 24½ grains—a trifle heavier than the Marshfield, but Pontardawe claims 3,799 sheets to make 1 in. in thickness.

We now come to the climax. The mill-manager of Messrs, W. HALLAM & Co., of the Upper Forest Tin Works, near Swansea, has succeeded in making a sheet of the finest appearance and thinness that has ever yet been seen by mortal eye. The iron from which the sheet was rolled was made on the premises. It was worked in a finery with charcoal and the usual blast; afterwards taken to the hammer, to be formed into a regular flat bottom; from thence conveyed to the balling-furnace, and, when sufficiently heated, taken up to the rolls, lengthened, and cut by shears into proper lengths, piled up, and transferred to the balling-furnace again; when heated, it was passed through the rolls, back again into the balling furnace, and, when duly brought to the proper pitch, was taken to the rolls, and made into a thorough good bar. Such is the history in connection with the forge department. It was then taken to the tin-mills, and rolled till it was supposed to be thinner than 23 grains, afterwards passed through the cold rolls to give it the necessary polish, and now it stands on record as the thinnest sheet of iron ever rolled. The sheet in question is 10 in. by 5½ in., or 55 in. in surface, and weighs but 20 grains, which, being brought to the standard of 8 in. by 5½ in., or 44 surface inches, is but 16 grains, or 30 per cent. less than any previous effort, and requires, at least, 4,800 to make 1 in. in thickness.—*The Ironmonger.*

THE COAL TRADE.

B. B. WESTERN, COAL EDITOR.

Anthracite Coals.

NEW YORK, July 21,1871.

WHOLESALE.—There has been a steady business doing the past week, and those engaged in the trade are encouraged by the bright prospect before them. Coal is rapidly moving and generally taken as fast as it arrives. Lehigh Coal is yet scarce, and demands higher rates. The supply, however, is more adequate than at our last writing, and by degrees buyers are becoming satisfied. Lehigh Coal has never heretofore been sent to the market in better condition. The demand is growing among buyers that coal shall come to market in a well-prepared and cleanly condition, free from slate and stone. It is time that the mongrel cargoes of coal were kept away from this market. It has been too much the custom of late years to shove off on New York all the refuse stuff that would not sell at other places. Our dealers are fast becoming acquainted with coal properly prepared for market, and the Lehigh operators have done more to enlighten them on this point than any one else. The Company Coals are coming to market this year also much improved in preparation; hence the readiness with which they are taken and regularly contracted for by the trade.

While an active business has been going on during the past week prices have been fully maintained; indeed higher rates have been offered for Lehigh Coals, which has imparted a general steadiness to the market. On Thursday the new prices of the Pittston Company, *to contractors*, were announced, which, as we predicted in our last, show an advance upon last month's rates, viz., *thirty* cents on all sizes, except stove, which is advanced *forty* cents. The prices are: Lump and Steamer, $4.80; Grate, $5.00; Egg, $5.10; Stove, $5.40; Chestnut, $4.60. We warned our readers they were allowing golden opportunities to slip by for procuring a supply, and those that heeded our advice no doubt feel gratified. This advance in Pittston rates is only a forerunner of what is to come, and other coals will no doubt advance in sympathy with them. After all this is only an endeavor to realize paying rates, for, as we remarked last week, coal is very cheap, and those who want it had better come now and take it while offered at fair prices.

The Scranton auction sale is announced for next Wednesday. 130,000 tons are offered this month, 10,000 more than last. These amounts seem large, compared with the eighty or ninety thousand tons in the early years of the auction sales. It must be remembered, however, that since then New York has doubled its coal business, the extra amount now offered at each sale is only keeping pace with a natural growth and demand. There will, of course, be an advance in prices at this sale, if only in sympathy with the Pittston Circular, but let not our buyers be foolish and hold off for a trifling discrepancy, but secure a supply, even if they have to pay 10 or 15 cents higher rates than last month. Every thirty days, as the season advances, is putting the matter off only to run greater risks of higher prices and freights. We expect there will be a large attendance at the sale, and Eastern men will be particularly looking out for their interests.

Freights remain steady. The general quiet existing in other branches of business at this season of the year has thrown a greater number of vessels on the market and kept rates regular.

BITUMINOUS COALS.—Cumberland coals retain a strong hold on the market, and have lost none of the *prestige* gained a year ago. For manufacturing and general steam purposes it has been demonstrated that they are far superior to Anthracite, and consumers don't lose sight of the fact. We apprehend that there will be lively competition this fall, and much strife as to which shall gain the mastery. The Anthracite people are very loth to give up such customers as the large steamship companies, the ferry companies and our large manufacturing establishments; and well they may, for they are among our largest consumers of coal.

The Jersey City or Cortlandt-street ferry alone takes sixty tons per day, or nearly twenty-two thousand tons per year. It is time that the Cumberland coals took their proper position before the public, and we are glad that they are being appreciated. Large consumers being, one by one, convinced of the value of Cumberland coal, will in time give such strength and sustenance to this branch of the trade as to warrant a greater development of the mines, which must result in great advantage to the country. Retailers should keep constantly on hand a supply of Cumberland coal, and they will find that a new line of trade can be easily built up in them. The Consolidation Coal Company of this city quote $6 50 in schooners, and $7 50 in barges alongside.

RETAIL.—There is an active business doing. Families are generally laying in supplies, fearing to wait further developments. Company coals are selling at from $5 50 to $7 50, varying as to size. Lehigh from $6 50 to $8.

PRICES.—The correction of prices for August will be made next week, after the regular issuing of the Company's Circular.

Anthracite Coal Trade for 1870 and 1871.

The following table exhibits the quantity of Anthracite Coal passing over the following routes of transportation for the week ending July 15, 1871, compared with week ending July 16, 1870.

COMPANIES.	1870. WEEK.	1870. TOTAL.	1871. WEEK.	1871. TOTAL.
*Phila & Reading R.R.	22,577	1,188 210	110 229	1,662,886
Schuylkill Canal	1,617	91,584	35,818	389,139
Lehigh Valley R. R.	62,861	1,710,930	72.154	812,534
Lehigh & Sus. R. R.	19,909	514,499	36,270	511,367
Lehigh Canal	24,654	244,487	31,639	156,143
Scranton North	17,811	366,568	17.595	132 574
" South	35.534	957,528	47,320	324,374
Penn. Coal Co., rail	24,207	598,709	27,481	202 200
" " " canal	478	8,242	617	3.986
Del. & Hud. Canal Co.	50.629	732,094	35,631	282.272
" " East	5,931	211 270	11.344	121,760
" " West	2.361	42.534	4,811	32.481
South	11,362	238 836	10.237	104,895
Shamokin	16,244	191,544	12,622	329,513
Trevorton	2,000	42 270	..	....
Lykens Valley Coal Co.	2,783	17,005	2,351	44,943
Wyoming South	....	110,562	....	....
Wyoming North	....	....	....	....
P. N. Y. C. & R. R. Co.	8.074	163.392	10,112	94.889
Williamstown Co'y	6,296	150,771	....	....
Big Lick Col	3,149	33.342	3.826	67,323
Total	318,497	7.614 327	470,093	5,279,279
1870		5,279,279	318 497	
Decrease		2,335,048		
Increase				151,596

* Less coal transported for Co's use and Bituminous coal.

Bituminous Coal Trade, 1870 and 1871.

The following table exhibits the quantity of Bituminous Coal passing over the following routes of Transportation for the week ending July 15, 1871, compared with week ending July 16, 1870.

COMPANIES.	1870. Week.	1870. Year.	1871. Week.	1871. Year.
C. & O. Canal	14,892	258,801	13,254	340,263
B. & O. R. R.	19,577	445,584	24 922	659,026
H. & B. T. R. R.	6 580	166,628	6,205	195,270
Harrisburg & D.	14,128	417,742	16,400	439,896
L. V. R. R.		8,229		41,737
P. & N.Y.C. & R. Co.	5,277	129,140	6,393	167,179
Cumberl'd Branch Canal	2.103	50,957	3,679	96,960
" Railroad	2 532	53,629	1,966	41,492
Total	65,094	1,530,710	72,828	1,981,823
			65,094	1,530,710
Increase.			7,734	451,113

Report of Coal Transported over Central R.R. of N. J. (Lehigh and Sus. Div.)

Week ending July 15—Compared with same time last year.

WHERE SHIPPED FROM	WEEK 1871., tons ct	WEEK 1870. tons ct.	YEAR 1871 tons cwt.	YEAR 1870. tons cwt.
Wyoming Region	37548 17	30070 08	542890 17	622147 08
Upper Lehigh Region	3734 06	3238 08	14983 06	71121 08
Beaver Meadow Region		5422 13		87458 09
Hazleton Region	9933 18	11144 18	20563 08	122269 04
Mahanoy Region		135 00		699 00
Treskow Region	3227 00		8425 19	
Mauch Chunk Region	6484 00	210 19	74369 14	30781 09
Totals	60928 01	50222 06	661233 04	904476 18
Increase	10705 15			
Decrease			243243 14	
DISTRIBUTION.				
Forwarded East of Mch Chunk by Rail	36269 15	19900 01	511367 03	514489 05
Forwarded East of Mch Chunk by Canal	19467 08	24900 17	77643 13	248171 00
Delivered at and above Mauch Chunk	1041 01	1015 00	29485 00	22023 19
Delivered to L. & B. R. R.at Plymouth Bridge	3659 16	4298 01	22953 13	106465 19
L. V. R. R. at Packer'n	490 01	99 07	19783 06	13326 16
Totals	60928 01	50222 06	661233 01	904476 18
Of the above there was transported on acc'nt of L. C. & N. Co.	9759 18	210 19	98425 00	47435 08
W.-B. C. & I. Co.	25361 04	16799 08	411002 02	278154 14
Totals	35121 02	17010 07	509427 02	325890 00
Increase	18110 15		183837 02	
Decrease				

Lehigh Canal Coal Trade.

Shipped for the week ending July 14, 1871.

	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total from Mauch Chunk Region	10338 15	82038 04
" " Beaver Meadow "	1418 05	2992 13
" " Treskow "	3539 03	6314 19
" " Mahanoy "	258 08	2189 16
" " Hazleton "	9901 04	20392 00
" " Upper Lehigh "	865 15	1427 15
" " Wyoming "	5287 15	47797 11
Total	31639 05	158142 18
Corresponding week last year	24654 00	244486 14
Increase	6985 05	
Decrease		86343 16

Philadelphia & Reading Railroad and Branches.

COAL TONNAGE

For the Week ending Saturday, July 15, 1871.

BY RAILROAD.—ANTHRACITE.

	Tons.	Cwt.
PASSING OVER MAIN LINE AND LEB. VAL. BRANCH.		
From St. Clair	37.662	04
" Port Carbon	6,857	01
" Pottsville	1,821	10
" Schuylkill Haven	35.721	12
" Pine Grove	6,368	13
" Tamaqua	19,334	15
" Harrisburg	58	14
" Dauphin	5,171	11
Total	113,000	00
FOR SHIPMENT BY CANAL.		
Passing Frackville Scales	12,126	01
" Mill Creek "	2,411	18
" Schuylkill Valley Scales	1,085	12
" Mt. Carbon "	1,446	19
" Cressona "	14,394	12
" Pine Grove "		
" Tamaqua "	3,211	00
Total	34,676	02
SHIPPED WESTWARD VIA NORTHERN CENTRAL RAILROAD.		
Passing Locust Gap	1,841	09
" Shamokin	3,185	14
" Herndon		
Total	5,027	03
SHIPPED WEST OR SOUTH FROM PINE GROVE.		
Via Schuylkill & Susquehanna R. R.	1,387	07
" Lebanon & Pine Grove Branch	941	04
Total	2,328	11
CONSUMED ON LATERALS.		
From Frackville Scales	646	05
" Mill Creek "	132	05
" Schuylkill Valley Scales	431	12
" Mt. Carbon "	667	11
" Cressona "	123	13
" Pine Grove "	8	02
" Tamaqua "	177	10
Total	2,386	18
LEHIGH AND WYOMING COAL.		
Received via Allentown, E. Penn's Br.	91	18
" " Alburtis, " "	30	00
" " Oreland, G. & N. Br.	1,562	07
" " Connecting R. R.		
" " Willow Street R. R.	588	06
Total	2,272	13
BITUMINOUS.		
From Harrisburg	11,178	18
" Connecting R. R., G. & N. Br.		
" Junction R. R.	11	11
Total	11,190	09
COAL FOR COMPANY'S USE.		
Anthracite	2 031	09
Bituminous	210	04
Total	2,244	13

RECAPITULATION.

	Total for Week.	Corresponding week last Year.	
Passing over Main Line and Leb. Val. Branch	113 090 00	27,077 07	i 85,922 13
For Shipment by Canal	34,676 02	3,697 07	i 30,978 15
Shipped Westward via Northern Central R. R.	5,027 03	5,462 07	d 435 04
Shipped West or South from Pine Grove	2,328 11	156 01	i 2,172 10
Consumed on Laterals	2,386 18	1,805 12	i 581 06
Lehigh and Wyoming Coal	2,272 13	4,675 00	d 2 402 07
Total Anthracite paying fr'gt	159 691 07	42,873 14	i 116817 13
Bituminous	11,190 09	8,282 00	i 2,908 09
Total of all kinds paying fr'gt	170.881 16	51,155 14	i 119726 02
Coal for Company's use	2,244 13	3,085 02	d 840 09
Total Tonnage for Week	173,126 09	54,240 16	i 118885 13
Since Dec. 1, 1870	2,619601 09	1830414 04	i 789187 05
Total to date	2,792727 18	1884655 00	i 908072 18

SHIPPED BY CANAL.

	Total for Week.	Corresponding week last Year.	
From Schuylkill Haven	33,367 10	2,502 00	i 31,065 10
" Port Clinton	2,451 00	236 00	i 2,215 00
Total Tonnage per Week	35,818 10	2 538 00	i 33,280 10
Since Dec. 1, 1870	353 320 10	89,048 09	i 264272 01
Total to date	389,139 00	91,586 09	i 29 7552 1

Schuylkill Canal.

Report of coal transported over the Schuylkill Canal for the week ending Saturday, July 15, 1871.

	Tons.	Cwt.
From Port Carbon		
" Pottsville		
" Schuylkill Haven	33,367	10
" Port Clinton	2,451	00
Total for week	35.818	10
Previously this year	353,320	10
Total	389,139	00
To same time last year	91,554	09

Philadelphia and Reading R. R.

Amount of coal transported on the Philadelphia and Reading Railroad during the week ending Saturday, July 15, 1871:

	tons.	cwt.
From St. Clair	37,662	04
" Port Carbon	6,857	01
" Pottsville	1,821	10
" Schuylkill Haven	35,721	12
" Auburn	6,705	14
" Port Clinton	19,326	15
" Allentown and Alburtis	121	16
" Harrisburgh and Dauphin	16,409	03
Total paying freight	128,637	17
Coal for Company's use	2 244	13
Total for week	128,882	10
Previously this year	1,985,703	14
Total	2,114,586	04
To same time last year	1,617,848	08

Report of Coal Transported over Lehigh Valley Railroad

Report of coal tonnage for week ending July 15, 1871, previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt
Total Wyoming	18,906 06	236,683 06
" Hazleton	48,752 10	343,632 13
" Upper Lehigh	44 13	726 00
" Beaver Meadow	17,586 02	112,906 19
" Mahanoy	12,194 05	281 764 08
" Mauch Chunk	130 12	5,999 13
" Sullivan & Erie		173 05
Total Anthracite	97.514 08	983,941 13
Bituminous Coal from all sources		41,737 00
Total by rail and canal	97,514 08	1,025,678 13
Same time last year	88,599 14	2,101,700 03
Increase	8,914 14	
Decrease		1,076,021 10
Forwarded East from Mauch Chunk by rail	72,153 17	812,534 09
Same time last year	62,860 19	1,710,930 03
Increase	9,292 18	
Decrease		898,395 14

RECAPITULATION.

Forwarded East from Mauch Chunk by rail	72,153 17	812,534 09
To N. C. R. R., at Mount Carmel		
Forwarded North from L. & B. Junction	10,112 07	95,002 19
To L. & S. R. R. at Packerton for rail	213 10	2,967 13
Delivered at M'h Chunk	15 19	3,343 09
Delivered on line of road above Mauch Chunk	330 00	490 14 5,496 05
Delivered above MauchChunk for use of L. V. R.R.	1,626 04	27,189 10
To L. & S. R. R., at Penn Hav., for railroad		94 10
Do. for canal	9,736 04	25,425 12
At M.Chunk for canal	3,317 07	11,334 12
Total Anthracite	98,514 08	983,941 13
Bituminous Coal		41,737 00
Total all kinds	97,514 08	1,025,678 13

Delaware and Hudson Canal Company.

The following is a statement of Coal transported by the Delaware and Hudson Canal Co., for the week ending July 15, 1871.

	WEEK.	SEASON.
By Delaware and Hud. Canal	35,631 09	282.272 00
By Railroad East	11.344 00	121.760 00
" West	4811 00	32,481 00
" South	102	104,995 00
TOTAL TONS,	62,023 00	541,408 00
For the same period last year.		
By Delaware and Hudson Canal	50,029 00	732,094 00
By Railroad East	5931 00	211.270 00
" West	2361 00	42,534 00
" South	11382 00	238,836 00
TOTAL TONS,	70,303 00	1,224,734 00

Delaware, Lackawanna & Western Rail Road Company.

Coal transported on the Delaware, Lackawanna and Western R. R. for week ending July 15, 1871.

	Week. Tons. Cwt.	Year. Tons. Cwt.
Shipped North	17,595 08	132,573 18
Shipped South	47,320 08	328,374 01
Total	64,915 16	460,947 19
For the corresponding time last year:		
Shipped North	17,811 13	366,567 17
Shipped South	35,533 11	957,527 15
Total	53,345 04	1,324,095 12
Increase	11,570 12	
Decrease		863,147 13

Pennsylvania Coal Company.

Shipments of Pittston Coal for the week ending July 15, 1871.

	1871. WEEK.	1871. YEAR.	1870. WEEK.	1870. YEAR.
By Railway	27,481 04	202,200 06	24,207 01	598,709 05
" Canal	616 12	3,986 03	477 13	8,242 01
Total	28,097 16	206,186 09	24,684 14	606,951 06

Decrease 1871, 400,764 17 tons.

Shamokin Coal Trade.

For week ending July 15, 1871	12,622 05
Same time last year	16,243 14
Increase	
Decrease	3,621 09
Total amount shipped to date	329,513 02
Same time last year	191,544 05
Increase	137,968 17
Decrease	

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Company for the week ending Saturday, July 15, 1871.

	WEEK.	SEASON.
North	57,226 01	396,873 06
South	10,237 10	104,894 13
Total	67,463 11	501,767 19
Corresponding time in 1870:		
North	43,007 06	1,217,809 19
South	11,282 09	238,833 10
Total	54,289 15	1,456,646 09
Increase North		
Decrease South		
Total decrease		954,878 10

Huntington and Broad Top R. R. Co.

For week ending July 15, 1871	6,205 tons.
Same time last year	6,580 "
Increase	"
Decrease	375
Total amount shipped to date	195,270 "
Same time last year	166,628 "
Increase	28,642 "
Decrease	

Statement of Coal Transported over Cumberland and Pennsylvania Railroad

During the week ending Saturday July 15, and during the year 1871, compared with the corresponding period of 1870.

WEEK.

	To C. & O. Canal Tons. Cwt.	To B. & O. R.R. C. Tons. Cwt	Total. Tons Cwt.
1871	13,254 10	24,922 09	38,176 19
1870	14,891 16	19,576 18	34,468 14
Increase		5,345 11	3,708 05
Decrease	1,637 06		

YEAR.

1871	340,263 03	659,025 12	999,288 15
1870	258,801 05	445,584 07	704,385 12
Increase	81,461 18	213,441 05	294,903 03
Decrease			

Cumberland Branch

WEEK.

	To C. & O. Canal. Tons. Cwt.	To B. & O. R. R. Co Tons Cwt.	Total. Tons. Cwt.
1871	3,679 00	1,965 15	5,644 15
1870	2,107 13	2,531 12	4,639 05
Increase	1,571 07		1,005 10
Decrease		565 17	

YEAR.

1871	96,960 06	41,492 04	138,452 10
1870	50,957 12	53,628 12	104,586 04
Increase	46,002 14		33,866 06
Decrease		12,136 08	

Report of Coal forwarded by Pa. & N. Y. R. R. Co., for week ending July 15, 1871.

	BITUMINOUS. Tons. Cwt.	ANTHRACITE. Tons. Cwt
By Rail	6,392 13	10,112 07
Previously this year	160,786 07	84,776 06
Total by Rail		
By Canal		
Previously this year		
Total by Canal		
Total for the year	167,179 00	94,888 13
To the same time last year	129,140 00	163,391 33
Increase	38,039 00	
Decrease		68,058 00

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

SCHUYLKILL.	AT NEW YORK, July 7. R. A.	W. A.	AT PHILADELPHIA, July 6. R. A.	W. A.
Lump	$- —	$- —	5 50	- — 4 50
Steamer	6 00	- —	- —	- — 4 50
Broken	6 00	- —	- —	- — to 4 75
Egg	6 25 —	- —	- —	- — to 4 75
Stove	6 50 —	- —	- —	- — to 5 00
Chestnut	5 75 —	- —	- —	- — to 4 25
Pea	- —	- —	- —	- —
LEHIGH.				
Lump, (along side)	6 75	—	- —	- —
Broken	6 10	- —	- —	- —
Egg	6 00	- —	- —	- —
Stove	6 50	- —	- —	- —
Chestnut	5 50	- —	- —	- —
Pea	- —	- —	- —	- —
SPECIAL COALS.*				
Diamond Vein	R. A. 5 50@7 00		- —	- —
New England	"	—	- —	- —
Locust Mountain	W. A.	6 50	- —	- —
Honey Brook, Le'h	W. A.	5 00@6 25	- —	- —
Spring Mountain	" "	5 00@6 25	- —	- —
Sugar Creek	" "	5 00@6 25	- —	- —
Sugar Loaf	" "	5 00@6 25	- —	- —
Old Comp'y's	" "	5 00@6 25	- —	- —
Cross Creek	" "	5 00@6 25	- —	- —
Room Run	" "	5 00@6 25	- —	- —
Girardville	" "	—	- —	- —
McMichael	" "	- —	- —	- —
Shamokin	" "	5 25	- —	- —
Lykens Valley	" "	5 75	- —	- —
Broad Top	" "	5 25	- —	- —
Hill & Harris	" "	5 25	- —	- —
Henry Clay	" "	- —	- —	- —
Powelton	"	5 25	- —	- —

*Dealers in these coals may be found in our advertising columns.

Company Coals.

July, 1871.

	L.	Str.	Gra.	Eg.	Sto.	Ches.
Scranton E. Port	4 70	4 80	5 10	5 50	5 75	4 75
*Pittston at Newburgh	4 50	4 50	4 70	4 80	5 00	4 30
*Lackawana at Rond't	- —	- —	- —	- —	- —	- —
Wilk'b're at Hoboken	4 75	4 75	5 00	5 25	5 75	4 75
Old Co. Lehigh at PtJohn'n	6 25	- —	5 65	5 50	6 00	5 00
Lehigh at Eliz. Port	6 25	- —	5 65	5 50	6 00	5 00

For freights to different points see "Freights."
* To contractors.

Line Prices for Coal July, 1871,

	Lump	Broken	Egg	Stove	Ches't
At Mauch Chunk	4.50	4.00	4 00	4.25	3.50
" Wilkesbarre	3 75	3.75	3.75	4.00	3.25

Prices at Baltimore—July, 1871.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$5 25@5 50
Pittston and Plymouth, do	5 25@5 40
Shamokin Red or White Ash, do	5 25@5 40
Lykens Valley Red Ash, do	- —@5 80
Zerba Valley	- —@- —
Treverton	- —@- —
By retail, all kinds per ton of 2240 lbs.	7 00@7 50
Georges Creek & Cumberland f. o. b. at Locust Point for cargoes	- —@4 75
Fairmont and Clarksburg gas, f. o. b. at L. Point	6 00@6 50
BITUMINOUS COALS.	
Kittaning Coal Co.'s Phœnix Vein..f.o.b. at Phila	$ —
Lemon " " "	—
Cumberland Vein Coal	—
Consolidation Coal Co.'s on board N. Y.	6 75
Maryland Coal Co. " "	6 75

Prices at Georget'n, D.C., & Alexandria, Va.

July, 1871.

George's Creek and Cumberland f. o. b. for shipping...$4 50@4 60.

Prices at Havre de Grace, Md.

Wilkesbarre and other White Ash for cargoes	$5 50@5 75
Lykens Valley	6 00@6 25
Shamokin Red or White Ash	5 50@6 00
Trevorton and Zerba Valley	- —@- —

Prices of Gas Coals.

July, 1871.

PROVINCIAL.

Corrected weekly by Louis J. Belloni, Jr., 41-43 Pine st., N. Y

Duty, $1 25, gold	Coarse	Slack.
Block House	$1 75 @-1 75	
Gowrie	1 75 @-1 75	

Corrected by Bird, Perkins & Job, 86 South street.

	Coarse.	Culm of Coal.
Pictou	$2 25	@1 25
Sydney	2 25	@- 80
Lingan	1 60	@- 80
Little Glace Bay	1 60	@1 00
Caledonia	1 60	@- 80

A discount from the prices of the coarse Coal on purchase of 5000 tons and upwards. Duty $1 25 per ton, gold, on the coarse coal. 25 per cent. ad valorem on the Culm of Coal.

AMERICAN.

	Currency.
Westmoreland	7 10 @7 25
Fairmount Gas Coal Co. of N. Y.	7 50 @- —
Despard Coal Co.	$7 50 @- —
Penn	7 75 @8 00
Newburg Orrel Gas	- — @- —
West Fairmount Gas Coal	8 00 @- —

AT PHILADELPHIA.

Powelton	$7 75

TO NEW YORK.

Provincial.	
Sidney	$ —
Lingan	—
Cow Bay	—
Port Caledonia	—
Little Glace Bay	—

TO BOSTON.

Sydney	$ —
Lingan	—
Cow Bay	—
Port Caledonia	—
Little Glace Bay	—

Prices of Foreign Coals.

June, 1871.

Duty $1 25 per ton.

Corrected weekly by FARMELE BROS., No 32 Pine street, N. Y.

Liverpool Gas Coking	$ 9 00@— —
" Cannel	11 50@12 50
" House	— —@16 00
" Orrel	12 00@14 00
Per ton 2,240 lbs., ex-ship.	
PRICES FROM YARD.	
Liverpool House Orrel, screened	$16 00@17 50
" Cannel, "	18 00@20 00
Per ton 2,000 lbs. delivered.	

Foreign and Provincial Freights.

June, 1871.

Foreign.	
Newcastle and Ports on Tyne, per keel of 21 1-3 tons	£14 00@£16 00
Liverpool, 5 per cent primage	13s @15 ton.

Freights.—June, 1871.

TO EASTERN PORTS.	Cumberland. From Georgetown.	Cumberland. From Baltimore.	Anthracite. From Philad'a.	Anthracite. From East Port, Port Johnston, and Hoboken.	Anthracite. From Newburg.	Anthracite. From Rondout.
Amesbury	$2 50		$2 50	$1 75		
Bangor	$2 75		2 30	1 50		
Bath	2 75	2 75	2 30	1 75		
Boston	2 60	2 50	2 25	1 50	180	1 80
Bridgeport	2 25	2 25	1 80	1 00	1 10	1 25
Bristol		2 60	2 00	1 25		1 55
Cambridgeport			2 75	1 75		
Derby			2 00	1 20		
Dighton	2 30	2 35	2 30	- —		
East Cambridge			2 35	1 75		
Fall River	2 25	2 25	2 26	1 25	1 40	
Hackensack			1 75	1 00		
Hartford	2 75		2 30	1 60		
Jersey City		2 00	1 40	50	70	
Middletown			2 25	1 30		
Mystic			- —	1 30		
New Bedford	2 50	2 35	2 00	1 25		
Newburyport	2 75		2 40	1 60		
New Haven	2 25	2 25	1 90	1 00	1 10	2 20
New London	2 25	2 25	1 76	1 10		1 25
Newport			2 00	1 30		1 40
New York	2 00	2 00	1 35	50	70	65
Norwalk			1 80	1 00	1 10	
Norwich	2 25	2 25	2 00	1 20	1 40	1 50
Pawtucket	2 50	2 40	2 30	1 40		1 65
Portland	2 50	2 60	2 50	1 50		2 00
Portsmouth, N.H	2 75	2 75	1 45	1 60		1 55
Providence	2 25	2 25	2 00	1 40	1 50	
Rockport			2 10	1 65		
Saco	2 75		2 25	1 75		
Sag Harbor			1 70	1 20		
Salem	2 60	2 75	2 35	1 50		
Stamford			2 00	1 00	1 10	
Stonington			2 00	1 25	1 20	
Taunton			2 30	1 60		1 40
Warren			- —	1 30		
Washington			1 25			
TO RIVER PORTS.						
Albany		80			55	
Catskill		70			60	
Cocksackie		70			60	
Coeyman's		70			65	
Cold Spring	2 20	70			30	
Fishkill		70	1 60		30	
Haverstraw					60	
Hudson	2 20	2 25			40	
New York					60	
Nyack			1 75		30	
Poughkeepsie					50	
Rhinebeck						
Rondout					75	
Saugerties			1 60		40	
Sing Sing					75	
Stuyvesant					75	
Tarrytown					75	
Troy					55	
West Point			1 75			
Yonkers					60	

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven for consumption	$1 95
For reshipment	1 95

MAUCH CHUNK TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Phillipsburgh	$0 84
C. R. R., N. J., Phillipsburgh to Elizabethport	1 25
Shipping expenses at Elizabethport	25
Wharfage	10
Total	$2 44

MAUCH CHUNK TO PORT JOHNSON.

L. V. R.R., or L. & S. R.R. from M. C. to Phillipsb'g	$0 84
C. R. R., of N. J., Phillipsburgh to Pt. Johnson	1 25
Shipping expenses	25
Wharfage	10
Total	$2 44

TO HOBOKEN.

L. V. R. R., Mauch Chunk to Phillipsburgh	$ 84
Morris & Essex R. R. Phillipsburgh to Hoboken	1 45
Shipping expenses	25
Warfage	10
Total	$2 64

TO SOUTH AMBOY.

L. V. R. R.	84
B. & D. R. R. / Cam. & Am. R. R.	1 15
Shipping Expenses	25
Total	$2 24

PENN HAVEN TO ELIZABETHPORT.

L. V. R R Penn Haven to Phillipsburgh	99
C. RR. of N. J. Phillipsburgh to Elizabethport	125
Shipping expenses	25
Wharfage	10
Total	$ 2 59

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.

From Schuylkill Haven	Toll..$1.25	Freight..90c.	$2 15
" Port Carbon			
" Port Clinton	" 1.17	" 8 c.	2 02

TO NEW YORK.

From Schuylkill Haven....Toll..1 25 Freight..$1 90..$3 10

The Rates of Toll on Lump and Steamer Coal will be ten per cent less than the above rates. The charge will be per ton of 2240 lbs. No charge less than Forty Cents per ton will be made for any distance. A drawback of thirty cents is allowed on all coal passing Fairmount Locks used at Philadelphia and vicinity.

Via Lehigh Canal.

TO PHILADELPHIA

Lehigh Canal	$ 80
Freight and towage	1 10
Total	$1 90

TO NEW YORK.

Lehigh Canal	$ 50
Morris Canal / Freight / Towing	2 11
Total	$2 61

TO JERSEY CITY.

Lehigh Canal	$ 50
Morris Canal / Freight	2 09
For re-shipment	2 59

Via Delaware and Raritan Canal.

TO NEW YORK.

Lehigh Canal	$ 50
Delaware Division Canal	30
Delaware and Raritan Canal	46
Freight	1 05
Towage	20
Total	$2 51

TO NEW BRUNSWICK.

Lehigh Canal	$ 50
Delaware Division Canal	30
Delaware and Raritan Canal	46
Freight	1 05
Total	$2 31

MARKET REVIEW.

FOR THE WEEK ENDING JULY 22, 1871.

IRON.—For Scotch Pig there has been very little inquiry. The market is pretty well supplied, but holders maintain very firm views in regard to price, and the market closes steady at our quotations. We have only to notice sales of 200 tons of Gartsherrie, on private terms. American is scarce and wanted, and prices are a trifle firmer. We quote No. 1 $35@$36, and No. 2 33@$34; 400 tons No. 1 sold at $31 75@$35. New Rails have been rather quiet since the sales noted in our last, but prices remain steady and firm. Refined Bar, though held with a firmer feeling, is quiet at our quotations—there is some movement for an advance, in view of the prices asked in Philadelphia ($77 50 there) and the fact that present prices here barely cover price of transportation, but it is not yet in shape.

LEAD.—Pig remains very quiet, but prices are steady at former rates; sales have been made of 100 tons Spanish, in lots, at $6 12½@6 15, gold. Bar, 9¼c., Sheet and Pipe 10¼c., and Tin-lined Pipe, 15c., less 10 ₱ cent. to the Trade.

COPPER.—The manufactures of Copper and Yellow Metal are steady at former prices (see quotations). Ingot, after the recent activity and large purchases, has become very quiet; the advanced prices are sustained; we have only to notice sales of 150,000 lb. Lake, in lots, at 21½c.@22c., cash.

SPELTER.—Foreign remains very quiet, and prices are nominally as before. Of Domestic, we notice sales of 20 tons Missouri Zinc Company at 6½c., gold; and 10 do. Selected, 9½c., currency.

STEEL.—No change or movements of importance have transpired since our last.

TIN.—A renewed stimulus has been given to the demand for Pig, by the receipt of telegrams advising a further advance in the price in London, English being quoted at £138. There has been considerable business and higher prices have been paid, the market still tending upward. The sales are 2,300 slabs Straits at 34¾c.@35c., closing with 35c. offered and 35½c. asked; 100 slabs selling at 35¼c.; 150 do. Banca, 39¾c.@40c.; 30 tons English, 34¼c.@34½c., all gold; and 10 do. at a private price. Plates continue in fair demand, and prices are firm at our quoted rates; sales have been made of 500 bxs. Charcoal Tin at $8 75 for I. C.; 2,700 do. Coke Tin, 10 by 14 and 14 by 20, $7 87½@8 12½; 500 do. second quality, $7 62½; 700 do. Charcoal Terne, $8 25, all gold; 1,000 do. assorted Charcoal Tin, and 500 do. ¼d X, on terms not made public.

ZINC.—Zinc is steady and firm. American Oxide, Dry, 6½c.@7c.; French do. 10c.@10½c.; Metalic do. 8¼c.@9c.; Manganese, 4c.@5c.

METALS.

NEW YORK, July 19, 1871.

IRON.—Duty: Bars, 1 to 1½ cents ₱ lb; Railroad, 70 cents ₱ 100 lbs.; Boiler and Plate, 1½ cents ₱ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ₱ lb; Pig, $7 ₱ ton; Polished Sheet, 3 cts. ₱ lb; Galvanized 2½; Scrap Cast, $6; Wrought, $8 per ton.

	Store Prices.
Pig, Scotch No. 1, ₱ ton	31 00@34 00
Pig, American, No. 1	35 00@36 00
Pig, American, No. 2	33 00@34 00
Pig, American, Forge	31 00@32 00
Bar Refined, English and American	73 00@74 00
Bar Swedes, assorted sizes (gold)	85 00@140 00
	Store Prices, Cash.
Bar, Swedes, ord'y sizes	102 50@115 00
Bar, Refined, ord'y sizes	75 00@ — —
Bar, Refined, ¼ @ 5-16 inch	82 50@ — —
Bar, Common	70 00@ 72 50
Scroll	95 00@125 00
Ovals and half-round	95 00@120 00
Band	90 00@ 95 —
Horse Shoe	95 00@100 00
Rods, ⅜ to 3-16 inch	82 50@120—
Hoop	100 00@140 00
Nail rod	— —@6¾ —
Sheet, Russia, as to assortment (gold)	12¾@12¾
Sheet, Single, D, and T. Common	—4½@— 5¾
Sheet, Galv'd, Nos. 14 to 26 3½c	12@14 ₱ ct. dis.
" " Nos. 27, 28, and 29 30c	15@18 ₱ ct. dis.
Rails, English (gold), ₱ ton	— — @57 00
Rails, American, at Works in Pa	70 00 @72 00

STEEL.—Duty: Bars and ingots, valued at 7 cents ₱ lb or under, 2¼ cents; over 7 cents and not above 11, 3 cents ₱ lb; over 11 cents, 3¼ cents ₱ lb, and 10 ₱ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ₱ lb	— 15 @— 16
English Spring (2d and 1st quality)	— 7 @— 10
English Blister (2d and 1st quality)	— 10 @— 17
English Machinery	— 11½@— 14
English German (2d and 1st quality)	— 12 @— 14
American Blister "Black Diamond"	— — @— 12
American, Cast, Tool do.	— 15 @— 16
American, Spring, do.	— 9 @— 11
American Machinery, do.	— 10 @— 11
American German, do.	— 9 @— 11

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper 4 cents ₱ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ₱ lb	— @— 30
Copper Bolts	— @— 32
Copper Braziers, 16oz. and over	— @— 32
Copper Nails	36 @— 38
Copper, Old Sheathing, &c. mixed lots	— @— 19
Copper, old, for chemical purposes, 14@16 oz.	20 @— 21
Copper, American Ingot	21½@— 22
Yellow Metal, New Sheathing & Bronze	— @— 22
Yellow Metal Bolts	24 @— —
Yellow Metal Nails	— @— 22

LEAD.—Duty: Pig, $2 ₱ 100 lbs.; old Lead, 1½ cents ₱ lb; Pipe and Sheet, 2½ cents ₱ lb.

Galena, ₱ 100 lbs	$— — @— —
Spanish (gold)	6 12½@6 15
German, do.	6 12½@6 15
English, do.	6 15 @6 50
Bar (net)	9 25 @ —
Pipe (net)	— — @10 25
Sheet	— — @10 25

Colwell, Shaw & Willard Tin-Lined Lead Pipe 15 cts. ₱ lb.

SPELTER.—Duty: In Pigs, Bars & Plates, $1.50 p. 100 lb

Plates, Foreign (god)	l.....p. 100 lb. 5 75 @ 6 25
Plates, Domestic	p. lb. — 7 @— 11

TIN.—Duty: Pig, Bars, and Blocks, 15 ₱ cent. ad val.; Plate and Sheets and Terne Plates, 25 ₱ cent.; Roofing 25. ad val.

	Gold ₱ lb.
Banca	— @40
Straits	35.7@35½
English	34¾@34⅞

PLATES.

Fair to Good Brands.	Gold.	Currency.
I. C. Charcoal, ₱ box	$8 62½@9 00	$10 25 @10 75
I. C. Coke	7 50 @8 50	9 50 @10 00
Coke Terne	6 25 @7 50	7 25 @ 9 00
Charcoal Terne	8 00 @8 50	9 50 @ 10 00

ZINC—Duty: Pig or Block, $1 50 ₱ 100 lb.; Sheet, 2½cts. ₱ lb.

Sheet, No. 9 to 11 Foreign ₱ lb.— 8¾@—9¼

Mining Stocks.

NEW YORK, July 19, 1871.

There has been considerable activity in the Mining Stock Board during the past week. Yesterday quite a number of sales of various stocks were effected at about our quoted rates, with the exception of "Black Hawk." The list has a downward tendency, and if we had only to-day's transactions to judge from we should feel justified in reiterating last week's complaint. The report is as follows:

GOLD STOCKS.

	BID.	ASKED
American Flag	12	21
Bates & Baxter	22	—
Benton	—	16
Black Hawk	25	50
Central Gold	7	9
Cons Gregory	29	40
Grass Valley	7	—
Gunnell	15	—
Holman	—	10
La Crosse	18	21
Liberty	—	—
Mariposa prf.	—	—
Montana	—	—
Rocky Mount	—	—
Quartz Hill	20	25
Smith & Parmlee	—	45
N. Y. & Eldorado	—	—

Petroleum is almost without change; United States and New York and Allegheny are lower. Central is firmer—no sales. As far as all other stocks on the list are concerned, the same figures used in the last report corresponds with the following, as furnished by the Board:

PETROLEUM STOCKS.

	BID.	ASKED.
Bennehoff Run	72	—
Bergen Coal and Oil	15	—
Bliven Oil	80	—
Blood Farm	—	—
Breevoort	30	—
Buchanan Farm	40	—
Central	66	68
Clinton	—	—
Home	—	—
National	—	—
New York & Allegheny	50	—
Northern Light	30	—
Phillips Pet	—	—
Pithole Creek	—	—
Rathbone Oil	14	—
Rynd Farm	35	40
Second National	—	—
Sherman & B	—	—
Tarr Farm	—	—
United Petroleum Farms	30	33
United States	—	65

San Francisco Stock Market.

"By Telegraph."

The report of the San Francisco Mining Stock Board is dated California, July 18th, "1st Board." The most noticable feature in the report is the advance in Belcher, it having sold at $236—an advance of $50 per share since our last report. Gould & Curry has slightly advanced. With those exceptions all other stocks on the list are weaker. Below is the report in full:

Savage	40¼
Yellow Jacket	65½
Kentuck	12½
Choliar Potosi	4¾
Gould & Curry	10¾
Belcher	236
Imperial	No sales
Amador	No sales
Crown Point	32⅝
Hale & Norcross	—

Weekly Slate Trade Report—Hydeville.

ROOFING SLATE.

Week ending July 15, 1871.

NAME OF COMPANY.	WEEK.	PREVIOUSLY.	TOTAL FOR YEAR.
Eagle Slate Co	105	2825	2930
Western Vermont Slate Co.	....	314	314
Blue Slate Co	40	1430	1470
The Evergreen Slate Co	220	2534	2754
Forest Mining Slate Co	35	409	444
West Castleton Slate Co	....	....	....
E. D. Billings	40	694	734
H. M. Copeland	....	404	404

VERMONT SLATE TRADE.

REPORT of Slate Shipped from Middle Granville, N. Y., via the R. & S. R. R., for the week ending July 15 and for the year 1871.

ROOFING SLATE.

NO. OF SQUARES.	Week.	Prev'ly.	Year.
†Penrhyn Slate Co	180	2550	2730
New York / *and Middle Granville Slate Co.	50	2780	2830
†American Slate Co	....	....	....
Benj. Williams	25	880	905
Jones & Williams	....	90	90
Eagle Slate Co	35	235	270
Mettowee Slate Co	....	505	505
Albany Slate Co	....	375	375
H. W. Hughes	....	....	....
Total	....	....	....

MILL STOCK, MANTLES, &c.

NO. OF CASES SHIPPED BY	Week.	Prev'ly.	Total.
Eagle Slate Co	....	....	....
Penrhyn Slate Co	3	2618	2621

BLACK BOARDS.

NO. OF CASES.	Week.	Prev'ly.	Total.
Eagle Slate Co	....	....	....
Penrhyn Slate Co	....	....	....

MILL STOCK, &C.

NO. OF CARS SHIPPED BY,	WEEK.	PREV'Y.	YEAR.
Eagle Slate Co	3	19	22
Penbryn Slate Co	....	....	...

* Sales made together this season.
† Consolidated Sales.

Improvements in Steel Making.

WE would call the attention of our readers to a new process for the manufacture of cast-steel directly from iron ore, known as the Seymour process. A personal interview with Dr. CAMPBELL, the sole agent for this country, will probably be the most satisfactory method of acquiring detailed information on the subject. See advertisement on the last page.

DEPARTMENT OF POPULAR SCIENCE.

Sensations of Pressure.

So the baby weighs fifteen pounds! I am delighted to hear it. He is coming along finely. You suspected as much, because he felt so heavy in your arms of late, and now the butcher's scales have proved it, to your great delight. Strange, that mothers are so proud of heavy babies!

If you had a bit of paper on your arm instead of the chubbiest of cherubs, you wouldn't feel any weight at all, would you? Please say No, and then ask me, Why not? We shall thus gracefully open our conversation on the sensations of pressure.

A very light weight, not exciting the nerves at all, produces no sensation; a very strong pressure may result in the common feeling of pain, partially or wholly overpowering the definite sensation. Between these limits the sensations of pressure are produced by either compressing or stretching the skin between the nerve extremities. If you box JOHNNY's ears (as you never do), you suddenly compress the skin; when you pull his hair (as you never do), you suddenly stretch the skin. Probably the quality of the sensation is the same in both cases. It is through the muscles that we distinguish between pressure and pulling, and, by association (that is, the training of experience), judge of the direction of the force moving the skin. But if we would study the pure sensation of touch, we must separate it, both from muscular feeling and from associated ideas, among which may be included the acquired sense of locality, alluded to on a former occasion. The touch proper recognizes only pressure and temperature, and these in different degrees only, never in different quality. Whether an object be rough or smooth, is determined by the sense of locality in the skin. We call it smooth, when the intensity of the sensation of pressure is the same at all the points of the skin, which by this acquired sense we know to be near one another; we call it rough when it presses unequally upon neighboring parts of the skin, whence we refer the stronger impressions to prominences in the surface of the object.

The strength of the sensation of pressure corresponds to the force of the pressure on the skin. Sometimes, as for instance when an object is at rest, and pressing vertically upon us, the strength of the sensation is directly proportioned to the weight of the object. Our appreciation of pressures according to the intensity of the sensation is tolerably exact, though, of course, it cannot be compared with the precision of the balance. You guessed the baby's weight quite accurately; but you were not sure of it until the butcher came.

But that was an affair of the muscles, rather than the nerves. For the trial of considerable weights, we recur to the muscles, and we have learned to estimate the weight by the amount of muscular effort employed in lifting it. If we would experiment upon the capacity of touch alone to distinguish weights by the sensation of pressure, we must get the muscles out of the way.

Lay your hand palm upwards on the table, and turn your head away. I lay two coins of different weights side by side upon your palm. You have little difficulty in declaring which is the heavier. You could discriminate still more nicely if the coins were laid in succession on the same spot; for there is a great difference in the number of nerves, in the thickness of the skin over them, and consequently in sensitiveness, in different parts even of the hand. I place two pennies, one on the finger-end, which is notably rich in nerves; the other on the palm, where the nerves are rarer. You say the former is the heavier. Again, I lay on your hand, first a small coin, and then a larger one of equal weight. The latter feels heavier to you, because it covers and affects more nerves. Again, I deposit two pieces, equal in all respects, except that one is much warmer than the other. The warm coin seems the lighter of the two, probably because the effect of pressure on the particles of the skin expanded by warmth, is different from that on the same particles contracted by cold.

Now for one more experiment. I will take care to avoid all the sources of error named. I place a coin carefully upon a certain spot in your hand, remove it, and again place a coin of the same size and temperature upon the same spot. You say the latter is the heavier? You must be mistaken. I merely replaced the same piece. Do not trouble yourself, Madam, to find a profound explanation. The fact is, I assisted the last coin by gently pressing upon it! This often occurs unintentionally on the part of the experimenter; and I thought I would *impress* upon you the necessity of caution in this way.

To this sense of pressure, thus simply illustrated, and to the closely-allied muscular feeling, we are chiefly indebted for our conception of force. But we should be helpless without that faculty of the organs of touch, which I have called the sense of locality, which must serve as a subject for another talk.

R. W. R.

New Publications.

GENERAL REPORT ON THE PUNJAB OIL LANDS: By BENJAMIN SMITH LYMAN, Mining Engineer Public Works Department of the Government of India. Lahore. Printed at the Government Press, Public Works Department. 1870.

This valuable addition to our literature on the question of petroleum, from the pen of one of our old and esteemed contributors, is the result of surveys undertaken by the author, under the orders of the Indian government, for the purpose of ascertaining the value of the oil lands of that country.

It contains, in the first place, general remarks on the situation, contour of the country, geology, mode of the occurrence of the oil, mode of working, and yield of the district.

The determination of the precise geological age of the oil-bearing strata is rendered difficult by the occurrence in the same rocks of the *productus* and *nummulites*. With regard to this point, the author says: "It seems absolutely necessary either that the *productus* and its accompanying fossils are found in rocks far newer than the carboniferous, or else that the *nummulites* are found in rock much older than the tertiary. Possibly it will turn out that both these admissions must be made, and that all these rocks belong to an age between the carboniferous and tertiary."

In reference to the mode of occurrence, the author is decidedly of the opinion that the oil is originally formed, and has always remained in the same rock-beds from which it is now derived. He regards the supposition that it is forced up from underlying strata, and flows hither and thither through vast fissures in the deep rocks, as entirely unwarranted in the light of the observed facts; at all events, in the Punjab district.

The yield of oil in the whole district seems to be very trifling in comparison with that of our Pennsylvania fields. The district yields nothing except by pumping, and the exploration of the field is recommended by the author by boring wells at a distance of 100 feet apart. "Each well will," he says, "drain the rock more or less for some 25 feet or more all around it, but the exploration of the limit and yield of the oil-bearing part of the bed will go on more rapidly if the holes are not put too close together."

"The chief yield of oil has been from the Gunda wells, where boring No. 1, and the dug-well in which it is, have yielded all the oil, with perhaps a trifling exception." This produced, however, for six months on an average only ten gallons per day.

The general report is supplemented by special reports on the different places at which oil or indications of oil have been found. A dozen carefully-prepared maps and sectional views of the rocks, bound separately, accompany the report, and add greatly to its practical value.

The oil as it comes from the well is of a dark greenish color, and asphalt is usually found in the same locality as the oil.

A MANUAL OF THE PRINCIPLES AND PRACTICE OF ROAD-MAKING; comprising the location, construction and improvement of roads (common, macadam, paved, plank, etc.) and railroads. By W. M. GILLESPIE, LL.D., C. E. Tenth edition, with large addenda. Edited by CADY STALEY, A. M., C. E. A. S. Barnes & Company. New York and Chicago, 1871. Price $2 50, sent by mail, post-paid.

This book of over four hundred pages contains much information and many suggestions of importance to those engaged in construction and management of roads. The poorness of the ordinary roads in this country is very striking in comparison with the smoothness, compactness and easy grades of European roads. The difference is mainly due to the great distances to be travelled over in this country, and the comparative sparseness of the population. We are, undoubtedly, improving our roads every year, but much remains to be done, and many mistakes and unnecessary outlays of money might be avoided if our country surveyors, who are generally put in charge of the improvements, were well posted in the art of road-building.

The book before us is from the pen of one of the best writers on engineering subjects the country has ever produced, and the new edition has been modernized and ably edited by Mr. STALEY.

The main subjects discussed are the following: What a road ought to be; the choice of the ground over which the road should pass; the methods of performing all the necessary measurements of distances, directions and heights by simple means; the details of the construction of the road, such as, excavation, embankment, bridges, culverts, etc.; a discussion of the merits of different systems of preparing the surface, among which are mentioned earth, macadam, paved and plank roads. The final chapter on the defects of the present system of the management of town roads, and the new system proposed by the author, is well worthy of consideration, since without a good system it is scarcely expected that the roads will be good.

The Working of Trade Unions in England.

WE hear a great deal in this country of strikes and dissatisfaction among workingmen, but we are not aware that we have yet paralleled the following disgraceful outrage at Sheffield. A sheep-shear manufacturer, named ROCKINGHAM, has working for him two men named GEORGE STOREY, sheep-shear forger, and WILLIAM GAMBLES, sheep-shear striker; they went to their work on the morning of the 15th ult, as usual, and when manipulating upon an anvil the first heat they took from the fire, sparks fell upon the ground, and a quantity of gunpowder that was lying around the anvil exploded. The men, suspecting foul play, proceeded to examine the anvil, and found that a hole in it had been filled with gunpowder and covered over. Had this exploded the consequences would doubtless have been very serious. About twelve months ago the men were subjected to a similar outrage, and STOREY was then much injured. Neither of them belong to the union, and apart from this fact they are unable to account for this renewed attempt to injure them. The matter is being investigated by the police.

German Scissors.

AN English exchange devoted to the hardware trade, contains the following item, but does not comment upon it: "The production of cast steel scissors in Germany is somewhat injuriously affecting the demand for best qualities of Sheffield goods. During the past month we have seen samples of these scissors in the hands of merchants, and they are finding very great favor in the London markets. Indeed, one large mercantile house is doing very little in Sheffield made scissors, but are sending out enormous quantities of imported goods, which are sold here wholesale to dealers at from 3s, 6d. to 5s. per dozen, according to size and quality.

THE ENGINEERING AND MINING JOURNAL.

ROSSITER W. RAYMOND, Ph. D.,
WILLARD P. WARD, M. E.,
Editors.

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The Introduction of New Explosives.

WE hear continually of the discovery and trial of new explosives, and also of frequent accidents from the reckless manner in which they are handled and transported. There is, so far as we are aware, no explosive which cannot be handled with comparative safety, if sufficient care is taken, and the accidents, of which we hear so often, and which are sometimes so destructive, are, like railroad accidents, generally caused either by gross mismanagement or culpable ignorance. A man who is allowed to handle nitro-glycerine ought to know that if he throws a can of it from a car to the ground, it will, in all probability, explode. A man in charge of a powder magazine ought to know that if he lights his pipe with a match, and throws the still incandescent end into a pile of gunpowder, it will, if it is good for anything, explode.

In America we are proverbially careless of life and limb; but this is in a great measure due to the newness of the country, and as we grow older we become more cautious. The extreme caution practised in European countries often seems to us unnecessary; but we must remember that the Germans' caution and system contributed more than anything else to their success in the late war, and is the chief cause of their national greatness.

Great and important lessons may sometimes be learned from trivial occurrences. We notice in our English exchanges that considerable attention is being directed in that country to the new German explosive, lithofracteur, which has several times been alluded to in our colums. Trials of the material were made at the quarry of Mr. FRENCH, near Nantmawr, with great success. Mr. FRENCH, backed by "a large and influential deputation of gentlemen, called upon the Home Secretary in the House of Commons, and was introduced by Mr. S. HOLLAND, M. P. for Merionethshire, who stated that the object of the visit was to obtain permission to import into England, and also to manufacture the new explosive compound, lithofracteur." A gentleman who had witnessed the experiments, explained their nature and results, and pointed out the advantage of having an explosive material possessing such power and safety introduced into England.

Mr. BRUCE, the Home Secretary, said, in reply, that the responsibility of granting the permission asked was great, and rested with him. He would, however, willingly grant it as soon as scientific authorities, whom he should consult in the matter, signified their approval.

All this seems to us to involve a great deal of "red tape." But when we view the matter in an unbiased manner the caution displayed will, we think, commend itself even to our progressive ideas. This is a much better plan than to permit some irresponsible party to import a couple of tons of the material, and have it shipped to him on the railroad like so much common merchandise, so that a package may, perhaps, be thrown from a car in a crowded station, causing destruction of human life.

Physicians say that when they have discovered exactly what ails a patient, they have done one half of their work, and with equal truth we may add that when we know what we are handling we have obviated one half of the danger.

We have no doubt that many new and powerful explosives will be discovered, and that explosives, now considered very dangerous to use or handle, will be found almost free from danger when their true nature comes to be understood and the proper precautionary measures taken. This will, of course, take time, but if scientific assistance is promptly invoked, the time required will be much shortened, and many disasters averted.

We consider the example set by the English Home Secretary well worthy of our imitation, and we think that every new explosive invented or introduced from abroad into this country should be subjected to careful tests by men of well recognized scientific acquirements and integrity.

The Interior of the Earth.

IN the forthcoming report of the Smithsonian Institution is contained a highly interesting paper by Dr. T. STERRY HUNT, giving a summary of the views in chemical geology put forward by him in various scientific journals during the past twelve years, and a list of his principal publications on the subject, for the convenience of those who desire to follow up in detail the arguments suggested in this resumé. Dr. HUNT announces that his views will be embodied and developed in a work on the chemistry of the globe, the preparation of which is now well advanced.

It is not practicable to give a fair outline of this paper in the limits of a single article. It occupies but 26 pages, and deals with the astronomical, chemical and physical history of the earth, touching upon topics in almost every branch of natural science. An abstract of an abstract must necessarily be unsatisfactory. We shall at present consider only so much of it as relates to the condition of the earth's interior, according to the general theory held by this distinguished *savant*.

Dr. HUNT begins by accepting the nebular theory of LA PLACE (with a favorable word for that of CHACORNAC—either being good enough for his purpose), and FAYE'S hypothesis of the constitution of the sun. The heat of the sun, he says, "may be supposed to be maintained by the slow condensation of its mass; a diminution by 1-1000 of its present diameter being sufficient, according to HELMHOLTZ, to maintain the present supply of heat for 21,000 years." No account is here taken of the increment of heat from the falling of cosmical matter into the sun; but this is probably an accidental omission, as all these points are but preliminary to the chemical history of the earth, which commences with the exchange of its gaseous centre, after long-continued cooling, for one of combined and liquefied matter.

The mean density of the earth being about twice that of the materials composing its solid surface, Dr. HUNT says we may suppose an arrangement around the center of the matter condensed from the gaseous mass, in the order of specific gravity. "Metallic or metalloid compounds of elements, grouped differently from any compounds known to us, and far more dense, may exist in the center of the earth." But he suggests again that the condensing effect of pressure may account for the superior gravity of the interior mass, without the supposition of unknown compounds there. But again, Dr. YOUNG has calculated that the effect of the pressure at the center would condense granite to one-eighth of its ordinary bulk, and give the earth a mean density of 12 or 13. This is proving too much; and so Dr. HUNT suggests an escape by way of SPENCER'S speculation, that the center may be a cavity, filled with vaporous matter, and the planet merely a bomb. But of all these theories, we may take our choice; "it is a matter of indifference, so far as our argument is concerned, whether the process of condensation commenced around such a central cavity, or at the center of the globe itself." Apparently Dr. HUNT cares little what we say the center of the earth is, provided we will not say it is a liquid mass. *That* he cannot abide.

Having got the earth so cool that the elements not volatile in our ordinary furnace-heats were condensed into liquid form, he proceeds to support his well-known views, in opposition to the notion that further cooling gave rise to a solid crust around a liquid nucleus. His principal grounds are:

1. The density of fused rocks is much less than that of the crystalline products resulting from their slow cooling; hence, if solid portions of crust were formed at the surface, they would tend to sink as soon as formed. We cannot forbear asking, just here, why the crust which forms upon flowing lava does not sink to the bottom, if Dr. HUNT'S grounds and conclusions are correct.

2. The effect of pressure upon materials like molten rocks would be to raise the point of solidification, so that the deep interior of the earth could become solid, though at a far higher temperature than the surface.

3. Mr. HOPKINS'S view is approvingly quoted, that solidification commenced at the center and advanced towards the circumference, but at a certain zone a condition of viscosity was produced by the reactions of temperature and pressure; and upon this semi-liquid portion it was possible for a solid crust to form and float. Thus, as Professor SHALER has expressed it, "the earth consists of an immense solid nucleus, a hardened outer crust, and an intermediate region of comparatively slight depth, in an imperfect state of igneous fusion."

4. Other considerations drawn from astronomical and geological phenomena show the great rigidity of the earth, and require, if not a solid center, at least a crust several hundred miles in thickness. Hence, our author concludes, "If there still exist a liquid center, it must, so far as superficial phenomena are concerned, be as inert as if it were not;" and therefore he prefers to believe that our globe is solidified from the center.

A little further on, Dr. HUNT declares (if we comprehend him) that the viscid envelope upon which the solid crust was formed has probably since become entirely solidified; but it follows from subsequent passages that, according to his theory, a condition which he calls igneo-aqueous fusion has supervened,

as a result of the combined action of heat from the "incandescent center," chemical solvents, and, particularly, water. As he wrote in the *Canadian Journal* for May, 1858:

"We conceive that the earth's solid crust of anhydrous and primitive igneous rock is everywhere deeply concealed beneath its own ruins, which form a great mass of sedimentary strata, permeated by water. As heat from beneath invades these sediments, it produces in them that change which constitutes normal metamorphism. These rocks, at a sufficient depth, are necessarily in a state of igneo-aqueous fusion; and, in the event of fracture in the overlying strata, may rise among them, taking the form of eruptive rocks. When the nature of the sediments is such as to generate great amounts of elastic fluids by their fusion, earthquakes and volcanic eruptions may result, and these—other things being equal—will be most likely to occur under the more recent formations."

With this imperfect statement of Dr. HUNT's view, we must rest. His further treatment of the troublesome question of volcanoes and earthquakes is ingenious, but not to our mind quite satisfactory. He does not allude to the hypothesis which connects these phenomena with the attraction of the sun and moon, nor does he offer any other explanation of the periodicity of volcanic phenomena.

So far as his incandescent but solid nucleus is concerned, we do not see why it is not enough of itself to produce the phenomena ascribed to an igneous-fluid nucleus. If we understand the theory, this solid mass is more than hot enough to be fluid, but is prevented from becoming or remaining fluid by enormous pressure, just as the heated water in the tube of a Geyser is prevented from flying into steam by the pressure of the column above. It is not necessary to believe that the lava from a modern volcano is directly ejected from a vast fluid interior. Grant the adequate internal heat, and the enormous internal tension, and volcanic phenomena are natural results, whether the lava be a remelted rock or not. That it is, we do not doubt. A word more on the subject of tension. Probably Dr. HUNT will grant that a condition of solidity maintained by such enormous pressure as he contemplates, is different from the stable equilibrium of solidity at our ordinary temperatures. For instance, we can obtain steam approaching the density of water. But if, by increasing temperature and pressure, we should make a steam as dense as water, would it be like ordinary water? And hence, we conceive, the actual meaning of the word solidity, applied to substances at enormous temperatures and under enormous pressures, is a doubtful matter.

So long, therefore, as Dr. HUNT admits the earth's interior to be the source of the heat which alters, melts, and moves rocks, his theory is Plutonic, in everything but name. It differs from ours, at least, in matters only which lie beyond comprehension, proof, or analogy.

MINING SUMMARY.

California.

CONTRA COSTA COUNTY.

We take the following from the Antioch *Ledger*, of July 1st: Recent investigations concerning the formation of the different strata of earth, and the causes that produce the various angles at which the broken veins of coal crop out in this vicinity, have led to the belief by some that an immense coal bed underlies our valley. The dip of the veins as they appear in the Diablo hills and on the opposite side of the river, would seem to indicate this, and the subject is certainly one that should be thoroughly investigated. We extract as follows from a published report of an exploration and survey of the coal mines of the Mount Diablo District, by AUGUSTE REDMOND: The coals of Contra Costa county are lignites, and lignites of a very good quality, presenting the characteristics of true coal, and being bituminous like it. They form stratified beds, intercalated in the sandstones and other rocks which surround Mount Diablo, and belong to the tertiary formations, as indicated by the fossil shells found in them. There is nothing to indicate the outcrop of a coal vein but those sandy shales or friable blackish clays with little pieces of carbonized plants, derived from the decay of the fuel, for the characteristics alluded to disappeared by little and little. At a certain distance from the surface the rock becomes more and more compact, takes a shining black color, and at last presents all the characteristics of mineral coal. The deeper one descends the better the fuel becomes. Some weeks since, says the Contra Costa *Gazette*, of July 1st, we alluded to the operations of a party engaged in boring at a point near Lafayette, understood to be ostensibly prospecting for coal. A friend who visited the locality a few days since informs us that a shaft, about four feet by eight in size, has been sunk in a handsome and workman-like manner to the depth of thirty feet, and the work is apparently still being vigorously carried on, although at the time of our informant's visit the workmen were temporarily absent. Many persons are firmly convinced that the work must have some connection with the much-talked-of short-line railroad, as it is, they say, located at a spot that the road must intersect, if it passes anywhere in the vicinity, and the work is just of that character that would be necessary were a tunnel contemplated. Further than this we know of no tangible grounds on which to base an opinion in that direction. Some specimens of coal have been found, but we do not learn that a vein of any extent has been struck. The matter remains as conjectural as ever.

INYO COUNTY.

The *Independent* says: The Whittekind mine, in Cerro Gordo, is producing large quantities of rich ore from a newly-discovered lode thirty feet from the surface, and the same distance north from the main shaft. It is reported to be equal to the best ever opened in the mine, $3,000 worth having been extracted in the past two weeks. Work progresses on the tunnel, which taps the ledge eighty feet below. Mr. SCHULTE has a specimen of antimonial silver ore, from the San Lucas mine, which assays 600 ounces per ton.

NEVADA COUNTY.

The *Transcript* says: We mentioned that the North Bloomville Gravel Company were taking out in their drifts, in shaft No. 1, at Malakoff mine, $1,000 per day, having prospects from the surface to the bed rock. They are now down to the bed rock in shaft No. 3, and have excellent prospects. The distance between the two shafts is three-quarters of a mile, and the striking of the last prospect is important as demonstrating a continuous channel from one to the other.

ALTONA COMPANY.

The Grass Valley *Union*, of June 2d, observes: The mine is on Alta Hill, northwest of Grass Valley. We have noticed that the Altona had shunk a shaft to the bed-rock through rich gravel. The shaft was continued down in the bed rock, and a drift run under the gravel 220 feet from the bottom of the shaft. At that distance the miners have "raised up" into a very rich and extensive body of gravel. Cross tunnels are being started for drifting out the pay dirt.

DILLON MINE, PLACER COUNTY.

The shaft has been pumped out and is down near sixty feet, at which point the full ledge, three or four feet thick, will be shown in the bottom. This, so far as worked, has been very rich, all the rock having averaged by mill working over $80 to the ton. The claim belongs to three working miners, JOHN DILLON, JACOB COWAN, and P. HINES.

ST. PATRICK.

This company has had a thorough survey of the mine, showing the exact relative position of the ledge at the surface for a depth of 220 feet, by United States Deputy Surveyor BETHELL. The shafts and levels show a vast body of rich ore exposed.

The Grass Valley *Union*, of July 11th, says: A few days since, the Seven Thirty mine, located about four miles southwest of Grass Valley, had twenty-one loads of quartz crushed at the Gold Hill mill. The yield for the twenty-one loads was $4,410 worth of gold, or $210 for each load. The Seven Thirty is on the same ledge as the Bowery, and there are very many together. The success of the Seven Thirty should cause the Bowery to start up, and should make Boweryville town-lots be again in demand. The Tornado in the same locality will no doubt also receive attention at the hands of its owners.

Montana.

From the Deer Lodge Weekly *Independent* of July 7th:

CLARK'S FORK.

We received a call yesterday from J. C. MCCARTHY, who has just returned from the Clark's Fork mines. He gives us the following, which we can vouch for the truth of, having known our informant for the past six years, and have found him a truthful and reliable gentleman: He went to the Yellowstone last winter in order to get a good start this spring, and went into the mines with the discovery party. There was 110 men in the camp at one time, and the country was thoroughly prospected. A few fine colors were found in almost all cases, but nothing that would pay more than one dollar per day to the man with sluices, under the most favorable circumstances. After getting into the mines the discoverers stated to the prospectors that the most they had made in sluicing last fall was $2.50 per day to the man, but there was no prospect to justify the belief that they had made even this small sum. JEFF. STANDIFER, JACK BARONETTE, JOHN ALLEN and other well known prospectors became thoroughly disgusted after prospecting four or five gulches, and came out fully convinced that there was no paying mines in that country. Some of the party have gone to the Rosebud river, others to Yellowstone Lake, and a few to Snake river. The report brought in by JOSEPH LOWMAN, and published by the *Pick & Plow*, to the effect that several companies were sluicing in these mines and making $10 per day to the hand, is sheer fabrication. Mr LOWMAN was in the mines with our informant, but left several days before he did. If there are mines in that country that are valuable, they have not yet been found, which is now settled beyond a doubt. Mr. THOS. KELLY, an old '49-er, and well known prospector, accompanied Mr. MCCARTHY.

BLUE GULCH.

This is the name of a gulch at the head of Moose creek. Three companies are working on it, and are, we learn, making an average of $10 per day to the hand. The gulch is not extensive, but those who have claims upon it have very good ground for several years.

THE UPPER COUNTRY.

Nine companies of white men are engaged in mining on German gulch, most of whom have been using the abundance of water to the greatest advantage by hydraulicing off the heavy top earth. Most of them have commenced washing up, and we may expect some large clean-ups, which our special correspondent will report. Chinamen have purchased mining ground in German during the last year to the amount of $61,000, and yet there is no perceptible falling off in the number of white men. Two new claims are being opened above Dr. BEALE'S ground, which, up to the present season, was the upper claim worked. Nine miles westward, over the Range by way of a rugged trail, we came to French gulch, a tributary of the Big Hole. About seventy-five whites and some twenty-five Chinamen are engaged mining here, within a circuit of four miles. The principal companies are BIRMINGHAM & Co.'s of FRENCH, WIER & Co., and LYNCH, GARREIT & Co., of Fenian gulch, BRUNELL & Co., of the swamp claim at the head of First Chance, and ALLEN & Co. of the French gulch bar. Some of the companies mentioned have a large extent of rich ground, and will make some handsome clean-ups during the season. Several other parties of French and Spanish miners ark working, with fair compensation for their labor. Leaving French in the direction of Deer Lodge, we strike the gulch and bar mines of GOLDEN, MCMINN, MCGRAITH & Co., thirteen miles this side, and a little below Brundy's old mill. These parties own the water they use, and have an unlimited quantity of good ground; they are running a hydraulic, and have cleared off over four acres of bed-rock this season. They are still running eight-hour shifts, and will not make any general clean-up until near the first of August. These mines paid an average of $9 per day to the hand last season, and as they are being worked to much greater advantage this year, they will, without doubt, pay in proportion.

HIGHLAND.

The Only Chance Company is running three arastras, with eight beds. The mine is producing a large quantity of first-class ore, and there is no doubt that the gold product from this mine the present season will be much greater than that of former seasons. The Nevins company is running two arastras, with four beds. The ore is paying well, and the lode shows a fine body of quartz. TRAINOR, CONOVAN & Co. have struck a very rich deposit at the head of their flume in Highland gulch. They can get from 50 to 75 cents to the pan. CHARLEY WUNDERLICH has leased the Langworthy Flume Co.'s ground and is doing remarkably well. Five companies are working in Basin gulch, all doing well. Messrs. DAY & HARVEY, on Moose creek, have opened a claim on a bar that is paying good wages, and they are of the opinion that when they get their claim in good running order that it will pay from $8 to $10 per day to the hand. PARKS & DICKEY'S arastras are run day and night; the rock pays well, and there is plenty of it.

FREDRICKSON.

The town is pleasantly situated on a high flat, commanding splendid views of the Deer Lodge valley and the

south side of Powell's Peak. Good paying mines are known to exist in Antelope, Spring, Prairie and Dry gulches, and some sixty men are employed in them all. A deep gravel channel, containing some gold, runs through the bar on which the town stands. and parties are engaged with hydraulics in opening it up, with the most favorable indications that good pay will be found. Should this bar prove to be good, the reputation of the Race Track Diggings will be established. Prospecting is going on at several other points, and before the season closes we may safely expect to hear of extensive discoveries being made.

THE MINER'S DITCH.

The receipts of the Miner's Ditch Company for water is now over $100 a day. The ditch is now in good order, and those who have mining claims in that section may reasonably hope to have an opportunity to give their mines a fair trial before the close of the season. We hear of a number of companies who took out large quantities of gold last week, while others barely made wages. The true value of the mines has not yet been ascertained.

Colorado.

We take the following from the Central City *Register* of July 5th:

FRENCH GULCH.

Near the head of this gulch is Lincoln City, which in the olden time was a flourishing place, but now has many buildings to let. There is one blacksmith shop, a post office, and a 6-stamp quartz mill, run by water-power, owned by W. S. WALKER, and which cost about $13,000. The mill has been idle, with the exception of a few weeks, for years. It will not ever be thusly, for the placer mines in the vicinity are becoming exhausted, and it is reasonable to suppose the lodes will not always be neglected. GEORGE DAY is running two flumes, 600 and 500 feet in length, respectively, is working ten men, has considerable ground stripped, and is averaging about $10 per day to the man. CALVIN CLARK is working fourteen men, has in about 1,500 feet of flume, has a No. 1 derrick, and considerable ground sluiced off ready for shoveling, and as heretofore is averaging about $10 a day to the man.

J. TODD is working four men, has in about 800 feet of flume, and is in good pay. The Badger Flume Company, owned by ROOD, CLARK, EYSER & Co., WILLIAM MCCARTNEY, Superintendent, have in about 500 feet of flume and are working three men. The mine so far has not paid expenses, but they expect to reach bed-rock inside of 200 feet, at which time they will probably realize handsomely. The Grant Flume Company, owned by ILIFF, POLLOCK & Co., have in 1,700 feet of flume, and are working eleven men. They are running the flume and also side drifts, all of which prospect largely. On STILSON'S Patch, west side of French, Mr. SISSLER is taking out good pay. MOWER & HAYS, by means of a tunnel and shaft, developed some good ground in the Patch last winter, having struck dirt which averages 40 cents to the pan. PEARCE & Co. (late J. MCFADDAN,) will start up in a few days, and without the least doubt will average $10 a day to the man. J. JOHNSON has taken up some old ground in the vicinity, and will be apt to realize good wages. Jeff. Davis and Lillian Patches, on the west side of French, near the head, have yielded immensely, but owing to several reasons are not being worked this season, excepting by C. H. BLAIR, who has in about 50 feet of flume, is working in two places, employs seven men, and is obtaining fair pay. Two men are working ground on shares which belongs to CALVIN C. CLARK, and are making it pay. GEORGE M. CLARK & Co. are employing two men in opening some new ground, which prospects well. RIPPEY & Co. are taking out good pay in Webber gulch. FRED. DORL and others are booming in Gibson, with good results. French gulch is about five miles long, and with Stilson Patch, has about 17 miles of ditches, 6,700 feet of flume, five hydraulics. eight families, and a population at present (as near as I can obtain the figures) of 165. A large number of lodes have been discovered in French and vicinity, many of them somewhat developed. The Eilen lode, near the mouth of Australia gulch, owned by CALVIN CLARK, was worked last winter by a tunnel, which is in 50 feet. The ore will yield among the hundreds, in gold, per ton, and the lode should be worked. WILLIAM MCFADDIN, in Illinois gulch, is working six men, and is averaging $10 a day to the man, which is considerably in advance of previous seasons. Col. T. H. FULLER & Co. have completed their preparations, and will start up to-day. They have put in a flume 4x4, and 112 feet long, in Mayo gulch. They will work their ground by the booming process. The water is collected in a large reservoir at the head of the gulch, and let off when filled, in a large volume, which carries everything loose through the flume. HOPKINS & HOOPES are opening Pacific gulch, and are beginning to realize.

GOLD RUN

retains its former reputation, and is being worked by the following companies, who are all averaging about $10 per day to the man: SOLON PEABODY is working twelve men; MOFFAT & SHOCK six; BLODGETT & MAYO six; Catel six; WALKER six; and JOHN NOLAN seven. Buffalo flats, situated at the lower end of Gold run, is worked by GEO. MUMFORD, who employs fourteen men, is running four flumes and taking out good pay. Gold run and Buffalo flats are covered by two and one-half miles of large ditches and use seven hydraulics. Delaware is being worked by STOGSDILL & TWIBELL, who work five men and are taking out their usual good pay. ANDY DELAINE is working four men, and expects to realize better than last year. Delaware has about six miles of ditches and two hydraulics. Galena is worked by two companies. RILAND, COATNEY & ROBY are working ten men, are running two flumes, and will shortly make clean-ups similar to last season. Messrs. ROBY & Co. are working the upper portion of the gulch, employ a number of men, and are doing well. Galena is covered by a five-mile ditch and uses two hydraulics. Georgia, Humbug and American gulches are owned by six companies, and are the richest in the county, realizing from one to two ounces a day to the man, with a few inches of water. ELI YOUNG & Co. are running a bed-rock flume in the Swan, near the mouth of Georgia, for the purpose of striking the pay-streak in each.

Nevada.

We are indebted to the Elko *Independent* of July 8th, for the following:

LONE MOUNTAIN MINES.

On Saturday last, we visited the mines of Lone Mountain district, which are situated from Elko in a northerly direction, some twenty-eighty miles, the mines being about six miles from Coryell's station on the Mountain City stage road. The mountain upon which the mines are located is about three miles long and two miles wide, forming an oblong shape and reaching an altitude of about eight thousand feet above the level of the sea. Little or no timber is found in the immediate vicinity of the mines, but any number of springs are found in the various ravines that make down from the mountain. The ores found on the south side are principally galenas with other base metals, heavily charged with silver, making a happy combination for an easy and successful smelting and working of the same. The principal lode of the district is the Pauline, which is situated near the summit on the north-west side, and runs due north and south as straight as a bee line for a distance of about five thousand feet. The vein matter, which is decomposed, is rich in silver, with a fair percentage of gold. The formation in which this lode is imbedded is granite on the south-east and slate on the north-west. The surrounding evidences all point to it as being a fissure vein of no small importance. Some six companies have located upon this vein, to wit: San Francisco Company. 1,500 feet, upon which is a shaft sunk twenty-five feet deep, showing good ore all the way down. The next location, which is the most prominent in the district, is the Original, upon which is excavated a shaft sixty feet deep, and the company has a large quantity of rich ore on its dump. The location contains 800 feet, and is owned by B. N. LOWE & Co. The next location to the north is the Wideman Company's claim of one thousand feet, upon which a shaft has been excavated thirty-five feet, showing good prospects. Still further to the north is located the Juliana, containing one thousand feet, and showing a fine prospect, owned by EARLL, RAND & Co., of Elko. On the southeast side, near the west end, is situated the Lexington lode, a large deposit of some twenty feet in width, on which a shaft of thirty feet has been sunk, which discloses an immense body of ore. This is owned by CARPEAUX & Co., of Bullion City. About three hundred feet higher up the hill, and to the north of the Lexington, is located the Freeman lode, upon which but little work has been done, though it shows evidence of a fine prospect for a mine. This property is owned by M. P. FREEMAN & Co., of Elko. Nearly due north, about five hundred feet from the last mentioned lode, is located the Mammoth, which contains another large deposit of ore, resembling the Lexington in character of ore and size of ledge, and is favorably situated. It is owned by D. E. WALDRON, of Elko. We noticed several other locations upon which work had been done, exhibiting to view some fine pay ore, among which may be mentioned the Mary Mead, Monitor and Silver Queen. We are satisfied that Lone Mountain contains a large abundance of rich mineral.

QUARTERLY BULLION REPORT.

The Gold Hill *News* of July 5 says: The shipment of bullion from the office of WELLS, FARGO & Co., in this city, for the quarter ending June 30th, amounted to 1,905 bars, worth $3,265,412 63. The shipment for April was $1,040,042 51; for May, $1,149,787 53, and for June, $1,076,582 59.

Arizona.

From the Arizona *Miner*, of June 10, we summarize the following: Bradshaw, that highest and richest of districts, perched upon tops and sides of the grandest, most beautiful mountain-range in all the southern country, invites strangers from afar to come and share with us the rich treasures. Recent news from the district is good, and we will endeavor to give most of it, from what we have gleaned from the scores of intelligent, reliable gentlemen who have quite recently returned here on business.

THE TIGER—The leading silver lode of the district, is a marvel among mines, and it has been "traced" for over six miles. Of the many shafts, cuts, and tunnels now being run into it, we have yet to hear of the first growl at the ledge. All the companies are getting plenty of rich ore, and have been doing so from the time the first picks were struck into the croppings! Over six miles in length, an average of from four to thirty-five feet in thickness, and as yet not one barren spot found in the whole length of the mine! Then, the immense richness of its ores is something wonderful. Just think of 5,000 pounds of poorly-selected surface ore yielding, in San Francisco, at the rate of $900 per ton; of the pieces taken to that city by J. G. CAMPBELL, which assayed nearly $1,800 to the ton; of the following assays, from Gold Hill and Virginia City, Nevada, made there for WM. A. LINN and other persons, by eminent assayers: By WIEGAND & Co., nine samples as follows: $1,008 75; $786 50, $22 50, $122, $1,742 63, $1,953 40, $2,547 90, $58 13; mixture of ores, $1,318 69. One piece by same parties, $979 40. Certificate from HALE & NORCROSS' Assay Office, made by HOFFMAN, $1,804 69, $1,586 31, $972 22, $1,305 40, $2,990 69, $8,028 47. By MCCULLOUGH & Co., one assay, $982 22. What splendid results! And yet they are *poor*, compared to what those famous assayers could now get out of ore from a depth of from twenty to forty feet in this famous Tiger mine. MORELAND & Co., original locators on the Tiger, have out of their deepest shaft about 140 tone first-class ore, which will yield, good judges say, over $6,000 to the ton; besides 250 tons second-class ore, which may go as high as $1,000 per ton! The same is true regarding the other claims on the Tiger, all are rich. But the Discovery Company have the most ore out, and perhaps the widest pay streak.

American Institute of Mining Engineers.

THE next meeting of the Institute will be held at Bethlehem, Penn., on Tuesday, the 15th of August next, at 7 P. M., in the hall of the Lehigh University, which the President of the University has kindly placed at the service of the Institute for that purpose.

It is particularly requested that such of the members as have the opportunity will prepare papers upon professional subjects, to read at this meeting, and, if not able to attend in person, that they should forward such papers to the Secretary, for the Council, who will have them read. Attention is also invited to the 13th Rule.

A number of valuable papers have been promised, and it is expected that the meeting will be one of interest and importance. Visits will be made to the Zinc Mines and Zinc Works, Iron Furnaces, Rolling Mills, and other places of interest in the immediate vicinity of Bethlehem.

The attention of members and applicants is called to the following resolution, passed at the meeting of the Institute, viz.:

"All persons elected at the present series of sessions, constituting the May meeting of the Institute, shall be considered as associates of the Institute; and the Council shall report at the August meeting the said persons in two lists, as Members and Associates; for adoption by the associates then present, and that all persons to be permanently classed as members or associates shall signify the same to the Council before the August meeting.

Those desiring to be classed as members are requested to notify the Secretary of their claims to

such standing, accompanied by sufficient references for the guidance of the Council.

Members are notified that their subscriptions are due.

(By order of the Council)

MARTIN CORYELL, Sec'y.

WILKESBARRE, PA., July 1st, 1871.

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The simplest and cheapest device ever known for raising water, oils, syrups, acids, &c. Capacity 40 gallons per minute. Used in hotels, factories, mines, quarries, &c. Operated by steam direct from boiler. *Has no valve or wearing parts of any kind. It unaffected by sand or grit.* Certain to work at all times. Sent to any address on receipt of $25. SINKER, DAVIS & CO., Indianapolis, Ind.

U. S. PATENT OFFICE,
WASHINGTON, D. C. June 26, 1871.

On the petition of J. D. WEST of East Orange, New Jersey, praying for the extension of a patent granted to him on the 29th day of September, 1857, for an improvement in pumps. It is ordered that the testimony in the case be closed on the 29th day of August next, that the time for filing arguments and the Examiner's report be limited to the 8th day of September next, and that said petition be heard on the 13th day of September next.

Any person may oppose this extension.

M. D. LEGGETT, Commissioner.

U. S. PATENT OFFICE,
WASHINGTON, D. C. July 15, 1871.

On the petition of DELOS W. GITCHELL of Newburgh, New York, and LUTHER W. BADGER of Elizabeth, New Jersey, praying for the extension of a patent granted to them on the 24th day of October, 1857, for an improvement in manufacturing Seamless Felt Garments. It is ordered that the testimony in the case be closed on the 19th day of September next, that the time for filing arguments and the Examiner's report be limited to the 29th day of September next, and that said petition be heard on the 4th day of October next.

Any person may oppose this extension.

M. D. LEGGETT, Commissioner.

U. S. PATENT OFFICE,
WASHINGTON, D. C. June 23, 1871.

On the petition of WILLIAM PLUMER of Boston, Mass., praying for the extension of a patent granted to him on the 6th day of October, 1857, for an improvement in Rock Cutting and Drilling Machines. It is ordered that the testimony in the case be closed on the 5th day of September next, that the time for filing arguments and the Examiner's report be limited to the 15th day of September next, and that said petition be heard on the 20th day of September next.

Any person may oppose this extension.

M. D. LEGGETT, Commissioner.

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U. S. PATENT OFFICE,
WASHINGTON, D. C., May, 25, 1871.

On the petition of CHARLES H. SAYRE of Utica, New York, praying for the extension of a patent granted to him on the 25th day of August, 1857, for an improvement in Cultivators.

It is ordered that the testimony in the case be closed on the 25th day of July next, that the time for filing arguments and the Examiner's report be limited to the 4th day of August next, and that said petition be heard on the 9th day of August next.

Any person may oppose this extension.

M. D. LEGGETT, Commissioner.

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U. S. PATENT OFFICE,
WASHINGTON, D. C., May 11, 1871.

On the petition of JOHN TOULMIN of Worcester, Mass., praying for the extension of a patent granted to him on the 25th day of August, 1857, for an improvement in Vibrating Shears.

It is ordered that the testimony in the case be closed on the 25th day of July next, that the time for filing aguments and the Examiner's report be limited to the 4th day of August next, and that said petition be heard on the 9th day of August next. Any person may oppose this extension.

M. D. LEGGETT, Commissioner.

E. F. DUNNE,

Attorney and Counsellor at Law,

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Never deteriorates. Saves 20 per cent. Keeps steam perfectly dry. Thirty of the largest Mississippi boats have their boilers, pipes, etc., covered with this invaluable material.

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The Engineering AND MINING JOURNAL

In addition to the many attractive, interesting and valuable features already associated with this Journal as a

Technical and Professional Organ,

the Editors have determined to incorporate into its columns a

Department of Popular Science,

containing readable articles on the latest results of scientific inquiry in every realm of knowledge. This department is

Added to the usual Reading Matter,

since the space for it is obtained by omitting the weekly lists of the U. S. Patent Office, now no longer required by our business.

ENGINEERING AND MINING JOURAL,

BUY A COPY; READ THE DEPARTMENT OF POPULAR SCIENCE: SEE THE

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WOOD ENGRAVING

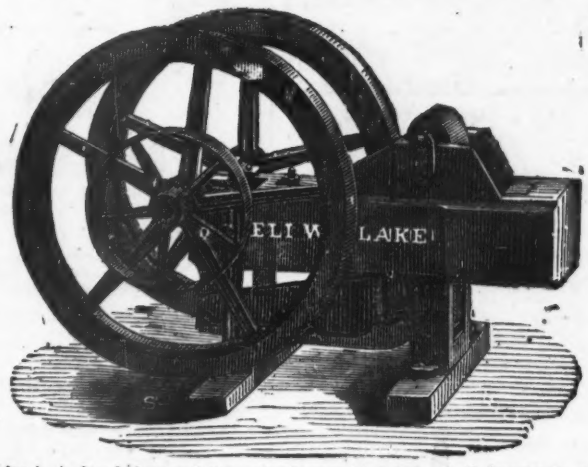
EXECUTED AT THE OFFICE OF

The Engineering and Mining Journal
No. 37 PARK ROW, NEW YORK CITY.

MICROSCOPES FOR SCIENTIFIC INVESTIGATIONS and Educational Purposes. Price list sent free. T. H. McALLISTER, Optician, 49 Nassau street, N. Y.
c21-6m

MISCELLANEOUS.

BLAKE'S STONE BREAKER.



The office of this Machine is to break Ores and Minerals of every kind into small fragments, preparatory to their further comminution by other machinery.

This machine has now been in use, enduring the severest tests, for the last ten years, during which time it has been introduced into almost every country on the globe, and is everywhere received with great and increasing favor as a labor-saving machine of the first order.

Illustrated circulars, fully describing the machine, with ample testimonials to its efficiency and utility, will be furnished on application, by letter to the undersigned.

☞ The Patents obtained for this machine in the United States and in England having been fully sustained by the courts, after well contested suits in both countries, all persons are hereby cautioned not to violate them; and they are informed that every machine now in use or offered for sale, not made by us, in which the ores are crushed between upright convergent faces or jaws actuated by a revolving shaft and fly-wheel, are made and used in violation of our patent.

Mch. 14-1y. **BLAKE BROTHERS, New Haven, Conn.**

JOHN A. GRISWOLD, ERASTUS CORNING,
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MANUFACTURERS OF PIG IRON, RAILROAD, MERCHANT AND SHIP IRON,

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May 17:1y

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OXIDE OF ZINC, SPELTER, SHEET ZINC.

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Materials and Workmanship Equal to those in Full Gauge Railroad Locomotives.

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STEAM, WATER, AND GAS FITTINGS OF ALL KINDS.

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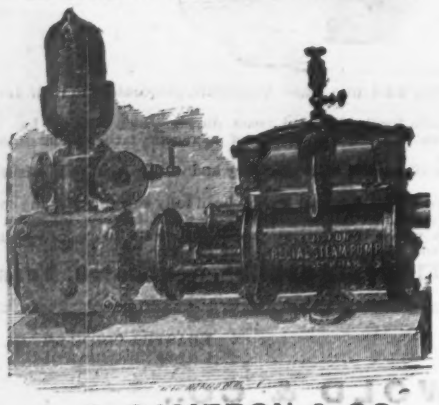

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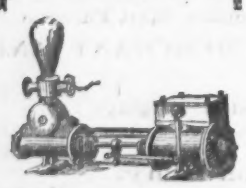

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Jobbing and Repairs promptly attended to.
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Sept18ly

MISCELLANEOUS.

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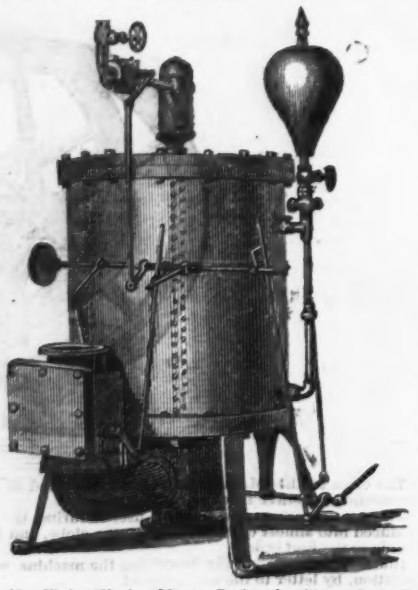

For City Water-Works, Mines, Railroads, Steamships, Breweries, Sugar Refineries, Tanneries, and various Manufacturing purposes.

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Send for Illustrated Circular. feb22 6m

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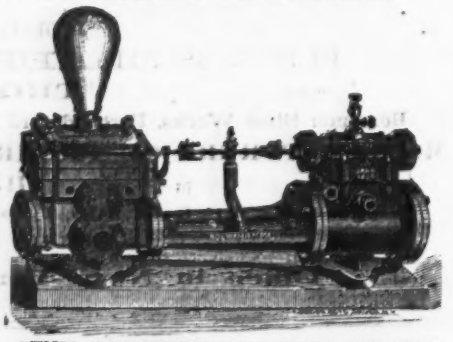
STEAM PUMPS.



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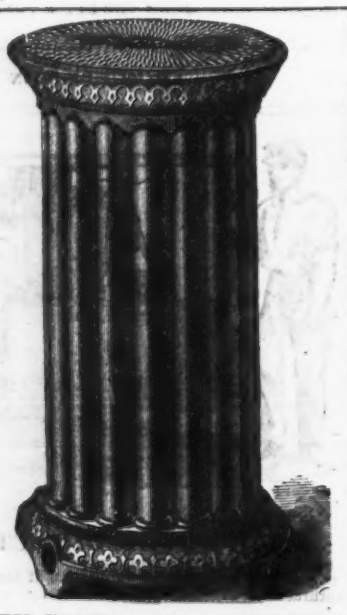

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CORNER OF PINE AND NASSAU STREETS,
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ISSUE CIRCULAR NOTES AND LETTERS OF CREDIT FOR TRAVELERS, AVAILABLE IN ALL THE PRINCIPAL CITIES IN THE WORLD.

TRANSFERS OF MONEY TO EUROPE AND THE PACIFIC COAST BY TELEGRAPH.

☞ Interest allowed on Deposits. feb-1y

U. S. PATENT OFFICE,
WASHINGTON, D. C., May 26, 1871.

On the petition of THOMAS J. CHUBB of New York N. Y., praying for the extension of a patent granted to him on the 25th day of August, 1857, for an improvement in Separating Ore.

It is ordered that the testimony in the case be closed on the 25th day of July next, that the time for filing arguments and the Examiner's report be limited to the 4th day of August next, and that said petition be heard on the 9th day of August next. Any person may oppose this extension. M. D. LEGGETT, Commissioner.

U. S. PATENT OFFICE,
WASHINGTON, D. C., May 11, 1871.

On the petition of JOSEPH W. BUDD, of Midland City, Michigan, Administrator of ISRAEL DODENHOFF, deceased, praying for the extension of a patent granted to the said ISRAEL DODENHOFF, on the 18th day of August, 1857, for an improvement in Raking Apparatus for Harvesters.

It is ordered that the testimony in the case be closed on the 18th day of July next, that the time for filing arguments and the Examiner's report be limited to the 28th day of July next, and that said petition be heard on the 2d day of August next. Any person may oppose this extension. M. D. LEGGETT, Commissioner.

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FOR IRON WORKS, LIME KILNS, FANNERS,
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For economy of management and successful working, the most satisfactory references can be given; also for general mining ability and strict integrity.

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Analytical & Consulting Chemist and Engineer.

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Office ENGINEERING AND MINING JOURNAL, 37 Park Row, New York City. 30tf an

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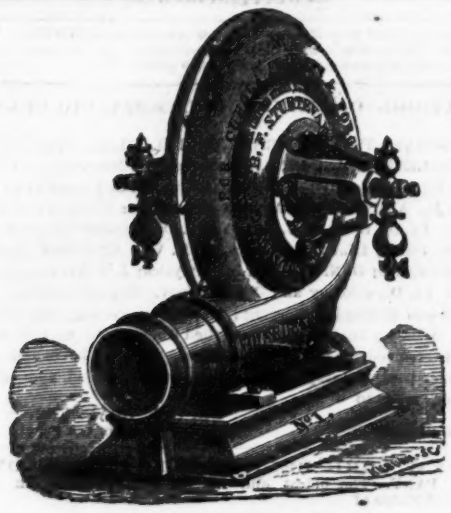

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PRESSURE BLOWER,

FOR CUPOLA FURNACES AND FORGES.

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☞ IMPROVED PATENT HYDRAULIC JACKS, that run out their entire length in a HORIZONTAL or any other position.

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For Punching Iron, Die-Sinking, etc. Ap 12;1y

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AND COMPLETE MACHINERY FOR CRUSHING SCREENING AND CONCENTRATING ORES.

Minerals and Ores in which the difference of specific gravity is so slight and which are also sometimes in such fine particles as to defy separation by any other machinery or method, are readily separated by this Concentrator.

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Having had a large practical experience in Europe and this country, is prepared to examine and report on all kinds of mineral property, superintend mines, and metallurgical works, assay ores, etc. 15-2-qp

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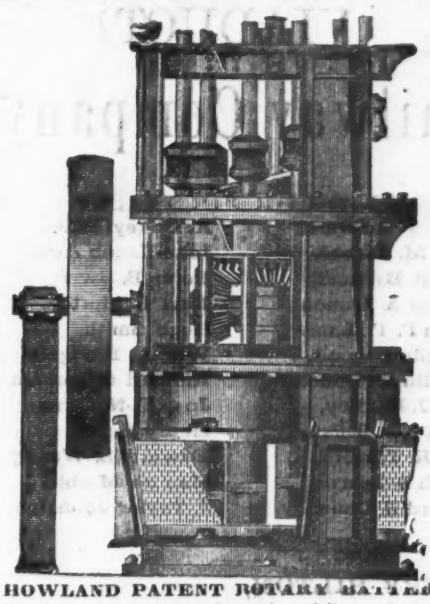

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of 12 stamps. It requires no frame to put it up. Guaranteed to crush 2½ to 3 tons per day to the stamp. The best Battery ever used for amalgamating gold, or crushing silver ores, dry or wet. Can be put up on a mine in running order for one-half the price of the straight battery, and in three days after its arrival at the mine. 12-stamp battery, 20,000 pounds, with frame complete; 6-stamp battery, 7,000 pounds. Every mill run at shop before shipping.

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Irons for the best California stamp mill, straight battery, complete. Also, Irons for low mortar, old style mill, and all other kinds.

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All sizes made to order at short notice.

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DIAMONDS AND CARBON furnished and set for drilling rock, sawing or working stone, also *Glazier's Diamonds*. See ENGINEERING AND MINING JOURNAL, January 17, 1871, for further particulars.

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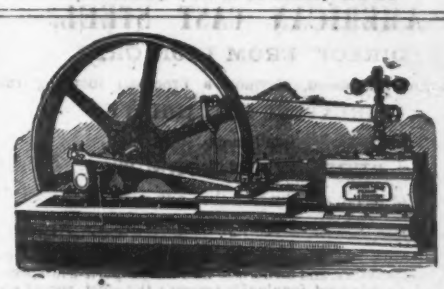

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By one quick fusion, (Seymour's process,) insuring the

GREATEST RELIABILITY

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of metal, at MUCH LESS than ONE HALF the COST OF WROUGHT IRON.

The attention and thorough investigation of steel manufacturers, iron masters, and owners of mineral properties is specially called to this *most invaluable process*; the most recent *reliable* advance in metallurgy. By this method every difficulty is removed, no large capital is required, loss of metal is prevented, and much time and labor saved. It requires no "blast" furnaces, no "refinery," no "pudding" furnaces, no "cementing" furnace; no bar-iron, no "blistered" steel; not even crude iron, whether Scotch pig, "Spiegeleisen," or any other description of cast-iron. *It only requires the simple* ORE which it converts into CAST STEEL, of the *finest* and *most* UNIFORM quality, in one *simple and quick* fusion, *at a cost* ONLY, of from $25 to $35 per ton.

By Seymour's process also, iron ores (those of Lake Champlain, for instance) can readily be converted into *chemically pure* METALLIC IRON POWDER, at a cost of *less* than $20 per ton; the product being a material *far superior* to the *bar iron* or the *best* "*blistered*" *steel* as now produced, and one also POSITIVELY suited to the production of any grade of cast steel, (by one fusion.) This material (*metallic iron powder*) would readily be purchased by steel smelters, both in America and abroad, not only on account of its *extraordinary* CHEAPNESS, but from the *excellence, purity*, and *uniformity* of the metal resulting therefrom. To owners of mineral properties, a magnificent field offers itself, in the prosecution by "Seymour's method" of this particular branch of metallurgical manufacture.

The undersigned is now prepared to negotiate the sale of shop, county, or state rights, for the use of "Seymour's process," on liberal and equitable terms. Specimens of finest cutlery, tools, knives, watch-springs, surgical instruments, bars of hammered and rolled steel, etc., etc., made by "Seymour's process," (*from ores otherwise intractable and worthless,*) on exhibition at the agency. Letters-patent issued to E. L. Seymour, May 23d, 1871. ☞ A pamphlet descriptive of the *modus operandi* of the process sent on application.

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SAFETY FUSE,

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wherever required, from having nine manufactories in different States, beside agencies and magazines at all distributing points. nov. 1:1y

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DUALIN.

NEW EXPLOSIVE,

EQUAL IN STRENGTH TO NITRO-GLYCERINE. SAFER THAN GUN-POWDER.

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mh 21:3

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Can be seen at work near to New York.

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AVOID LEAD POISON.—TIN-LINED LEAD PIPE is the only water-pipe in the market which combines safety to health with strength, durability, facility of bending, and making perfectly tight joints. Water flows through it as pure as if drawn through silver. It is approved by all the leading chemists and physicians in the country; also, the Water Commissioners of New York, Brooklyn and Boston. In addition to the plumbing of houses, it is largely used in conveying water from springs and wells. Price 15 cents a pound for all sizes. Circulars and sample of pipe sent by mail, free. Address THE COLWELLS, SHAW & WILLARD MF'G CO., 213 Centre street, between Canal and Grand streets, New York. Also, manufacturers of Block Tin Pipe, Lead Pipe, Sheet Lead, Solder, &c. ORDERS SOLICITED. Ap 25–6m

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By authority of the Board of Directors of THE NEW YORK RAILWAY COMPANY, and in conformity with the terms of the Act of Incorporation in that respect, the undersigned Commissioners on Stock Subscriptions give public notice for and on behalf of the Directors, and of such Company that Books of Subscription for the Capital Stock thereof will be opened on WEDNESDAY, THE TWENTY-EIGHTH DAY OF JUNE instant, at the following places in this city, namely:

At the Banking House of
DUNCAN, SHERMAN & CO.,
No. 11 Nassau street.

At the Banking House of the
BANK OF THE METROPOLIS,
No. 31 Union square.

The Company is authorized to construct two Viaduct Railways or branches through the City of New York, on the east and west sides thereof, from a common starting point at or near Chambers street, between Broadway and Chatham street; also across the Harlem River and through Westchester County; with power to build additional lines of railway or branches, from time to time, in any part of the City or Westchester County. *The property acquired by the Company is exempted from taxes and assessments during the period allowed for the final completion of the railway in the city.* The Mayor, Aldermen and Commonalty of New York are authorized and directed, with the approval of the Commissioners of the Sinking Fund, to subscribe for **five millions of dollars** of the stock of the company, whenever one million of dollars thereof has been subscribed for by private parties. *This conditional amount of stock has been wholly subscribed for and taken by the Directors of the Company.* On the completion of either of the lines of railway to the line of Westchester County, the Supervisors of that County are authorized to issue the bonds of the County to such amount as the Supervisors shall deem expedient, to aid in the construction and extension of the railway in and through that County. For the proper equalization of the interest of shareholders who may subscribe and pay in moneys at different times, the Directors are authorized to issue scrip for interest on such payments, payable out of the earnings.

THE TERMS OF SUBSCRIPTION will be as follows:

TEN PER CENT. of the amount of Stock subscribed for, to be paid in cash at the time of subscription. The residue to be paid as called for by the Board of Directors, on a notice of thirty days, but no call at any one time to exceed ten per cent.

Scrip for interest at the rate of seven per cent. per annum will be issued by the Company, payable out of the first earnings of the Railway on all installments paid on Stock subscribed for within thirty days after the Books Subscription shall be opened.

The Company reserves the right to close the Subcription Books at any time after the twenty-ninth day of July, 1871.

By order of the Board of Directors,

Alexander T. Stewart, Commissioners
John Jacob Astor, on behalf of
Levi P. Morton, the Company.

NEW YORK, June 16, 1871.

Advertisements.

Advertisements admitted on this page at the rate of 40 *cents per line. Engravings may head advertisements at the same rate per line, by measurement, as the letter press.*

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nov21-1y-is Dean of the Faculty.

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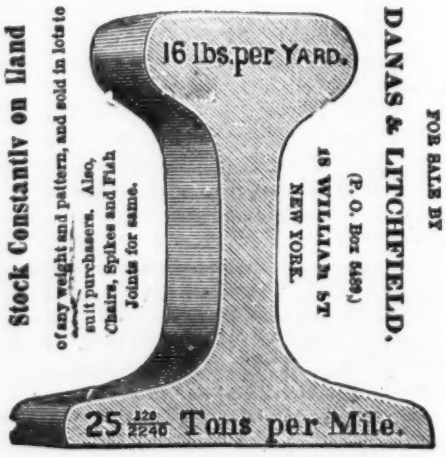
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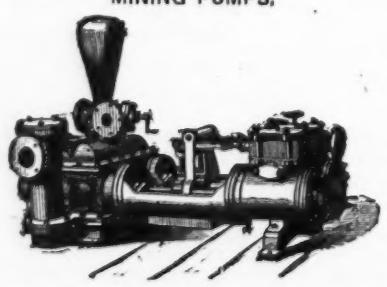

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